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Wood-Carvings at the Royal Albert Hall.

OUR readers are aware that we are much interested in the endeavour which is being made by the Council of the Royal Albert Hall to revive an interest in the practice of wood-carving. With this feeling we give special prominence to a further account of the specimens of this art, ancient and modern, which have been collected under their auspices for exhibition.

The glass case in front of Messrs. Jackson & Graham's cabinet, already mentioned, contains some rare and delicate specimens, and we wish to point out those of special interest.

Mr. J. W. Spread exhibits a piece of boxwood carving (No. 131), with strap-work and lions' heads, evidently the shelf support of some fine cabinet. No. 134, two clever statuettes in frames; No. 143 marks a pair of nutcrackers from Col. Sibthorp's celebrated collection; and No. 148, two heads, '*memento mori*." There were many of these latter executed in Italy about the beginning of the last century, all more or less variously treated, and many collectors have examples. The two claiming our attention are good specimens, the one a skull in an eagle's claw, the other a skull the half of which is covered with flesh, the worm in this instance protruding through the living cheek, producing a ghastly appearance, but carrying out the intention of the artist,—that of reminding us of death, with intense significance. The same gentleman is the fortunate possessor of the exquisite boxwood mask, No. 136, the design and execution of which is of Cellini excellence, and bears much of that noble artist's character. It is a gem that no lover of art, especially of Italian art, should pass by with a mere cursory glance. We say this because it is by no means demonstrative; it is small and perhaps unprepossessing in its general outline, and is of that dark colour which boxwood attains after exposure to the light for a length of time. The full front head in the centre and the side-faced grotesques at the ends united with Italian ornament are, to our mind, amongst the most perfect examples of the Cinque-cento period we have seen. Another boxwood example, No. 142, is fine work; this bears some similarity to the masks carved for the late Prince Consort, models of which, marked No. 29, are near the entrance.

No. 146, a pair of lockets, containing carved emblems, the one representing Love, the other Music. We find distributed over the rooms a comparatively large collection of these minute works, executed, as it would seem, by fairy fingers and eagles' eyesight. They are interesting, as illustrating one peculiar branch of wood-carving, but they serve no important purpose; they are, as it were, the *bijouterie* of the art, and we wish they had been classified together. We will, however, point out the other specimens which should be seen now for comparison, though it will take us somewhat out of our ordinary course. No. 100, in the second bay, an oval medallion, in walnut wood, lent by Messrs. Wright & Mansfield; No. 194, a panel of similar work, and probably by the same artist, lent by Mr. T. Foster Shattock: this is in the case near the window, at Bay 4, as is likewise No. 194B, a wreath, under glass, shown by Messrs. Gillow & Co. A little further, in Bay 6, is a bouquet, No. 243. There are also a few specimens in the further room, amongst the valuable loans from the South Kensington Museum. These are all of extreme delicacy of tooling.

We now return to the case we were examining to find a modern work of the same class, No. 145, by the late Mr. Bryer. This partakes more of the wonderful than the beautiful. We were told that there are fish, accurately carved, in the net, which is only half an inch in diameter. Our reflection on straining our eyes to see them was, *cui bono?* In the older specimens of this class which we have named there is a certain grace of design which is wanting in the modern, and which renders the latter, in our opinion, an example of so much waste of time and patience. Of these delicacies we deem the bouquet panel of Mr. Shattock's the most perfect in design. They are apparently all French, and of about the time of Louis XVI.

In the same case is an original stand for a bust of Shakspeare, supported on six pillars, carved in the wood of an apple-tree which grew in Anne Hathaway's garden at Shottery; the other portion is of Herne's oak, and it stands on a plinth which is a crosscut of the mulberry-tree that once stood in Shakspeare's garden at Stratford-place. The poet's crest is carved and seen through the pillars. It is the work of Mr. George Alfred Rogers, and lent for exhibition by Mr. James Mason.

A pair of lions, in ebony, are very characteristic of the Queen Anne period, and were probably the corner-pieces of some grand presidential chair. The statuettes of Christ are carved in boxwood, No. 147 being a finely-wrought figure. No. 150 is a boxwood cup decorated with slightly relievo ornament, the leaves in outline, of the Italian character, but with a somewhat crisp Gothic termination to them. The artist's name is not given. No. 144 is a heart-shaped frame, intended to enclose the united portraits of two betrothed persons. There are two winged loves at the sides, the torch of Hymen furiously burning beneath, and wreaths of flowers and fruits interspersed. It is one of the fine works of the late Mr. W. Gibbs Rogers, and is the property of Mr. T. Foster Shattock. A pair of Cupids (unfinished) by the same artist, are lent by Miss M. E. Rogers.

Before we leave this case let us call attention to another boxwood carving, No. 149, representing the figure-head of the old *St. George*, which was built in the reign of Queen Anne. It was one of those grand ornate ships-of-war, rich in carving and other decorations (this reminds us of another loss to the carver's art, the substitution of the metal monsters of the deep in place of those of wood). A full miniature model of this ship was ordered to be made, and the decorations were to be carved in boxwood by an Italian artist then in court favour. It is not known where the rest of the model is, but it would be very interesting to get all together again. No. 153 is an oval box, bearing the royal arms and cypher, which appears to have belonged to King Charles, though the owner does not claim that distinction for it. It is lent by the Rev. J. Jackson, M.A., who contributes several other interesting carvings and relics.

If we move onwards a few steps we shall find another glass case behind the adjoining screen. Here are two pilasters delicately carved in light wood and mounted on black grounds, copied from the mural decorations in the Vatican, artist unknown. Also two specimens of the very delicate class of work to which attention has already been called; a pretty miniature frame carved in boxwood by Mr. G. A. Rogers for Earl Cathcart, consisting of olive branches, monogram, and coronet; two modern Italian pilasters of very good workmanship, lent by Sir Wm. Drake, and a thermometer case carved in satinwood by the late Mr. W. Gibbs Rogers; the convolvulus leaves are turned and twisted about in a very natural and pleasing manner. This and No. 266 are lent by Mr. and Mrs. Samuel Carter Hall. The latter work is on our right hand, and is as good a pedestal table-leg as we often see,—the parts blending together, and not broken by abrupt mouldings. We must necessarily pass over many works well worth attention both in the cases and in the bays, alluding only to those requiring a further description than is given in the catalogue.

Proceeding to Bay 5, we find it chiefly occupied by the exhibits of Messrs. Mellier & Co. The decorations for the side of a room in the style of Louis XIV., are carved in walnut, and are imposing. A toilette glass and other Louis XVI. works are quite in true character. Messrs. Mellier & Co., besides their own productions, exhibit a few old works which are extremely interesting, more especially the English panel of Henry VII.'s time (notice the peculiar pilasters and columns, so like those shown in Bay 1, No. 38), and a grand Flemish panel of Renaissance ornament, in fine preservation, probably late fifteenth-century work.

No. 196 is a frame by Messrs. Bertram & Sons. Several good specimens by this firm are to be seen in other parts of the building.

In this and the next bay are arranged a number of the works of artisans: those who have occupied their leisure (and we fear the

gentry of England often allow carvers to have too much) in producing works which they can exhibit when such a chance as this offers itself; and if by mistake we include any names not belonging to this industrious order, we trust they will not be offended by being classed in so honourable a roll of craftsmen. The management have given every encouragement to them to exhibit, and we find many have taken advantage of the opportunity. Mr. Baker exhibits a small festoon, No. 190. Mr. Osborn has a pretty child's head carved in high relief, entitled "Little Sunshine." This carver has two more works distributed elsewhere. Mr. Frampton shows a pilaster cap in mahogany, and the model of a lion's head, &c. Mr. Denning sends some well-carved flowers. Mr. Hughes has carved eight panels of Early English character and three Italian friezes. No. 210, though not exhibited by the carver, is, nevertheless, suited to this department, for it was one of the prize carvings at the Society of Arts.

No. 209, "St. Michael slaying Satan," by H. Godart, after Flaxman, is a clever work. Mr. Mathews shows three very nice carvings (211, 232), female heads, and (219) a panel carved in birch; sprays of mountain ash are cleverly brought on to the cusps, producing a good effect. Mr. Wallis has a delicately-carved bird, "A dead Lark" (212). Mr. Malo has sent in a French partridge in sycamore, well finished, but for bird-carving the palm is carried off by Mr. Kendall, of Warwick, who has four exhibits here, "The Owl" (216) being well-nigh faultless as far as it goes. The feathers are very highly finished, and are here and there ruffled as if by the wind. Two other subjects, by the same artist, nearer the window (260), "The Kingfisher's Haunt," and (261) "Hare and Pheasant," are also beautifully carved, and we should think that scarcely any critic, however opposed to realistic treatment he may be, would fail to give credit to these works. Mr. G. H. Bull is well represented here, many of his works being shown. We must call attention to a dainty little frame of delicate carving in chestnut wood, No. 220, and also to a pair of American walnut mirror frames, which are worthy of praise; these are numbered 222 and 223. There is also a glass case of seven or eight other frames by the same hand in the further room. In the corner of this bay is a daring work,—a carving in the round of Mars and Venus. The upper part of the male figure is slightly out of drawing, but, considering the difficulties of this class of work, it is worthy of commendation.

There are two figure panels, bas-reliefs, No. 237. These are very correct and well carved, forming good classical works. Here we have an oak panel, after the style of Gibbons, No. 233, carved by Mr. Colley. Much of the restored work in St. Paul's Cathedral was executed by this carver. No. 236, a clock-case, by Mr. Wormleighton, does the carver credit. Mr. Willcocks shows a panel, richly carved, of Renaissance ornament, numbered 244. And there is a small panel, No. 245, by Mr. Fernee.

The "Moment of Victory" (No. 242) is an elaborately-carved picture by the late Mr. Bryer. We saw it in one of the great London exhibitions many years ago, and, if our memory serves, it was labelled "carved with a needle, a knife, and a shoemaker's awl." We fail to see the use of doing what we have to do in the most difficult way. But apart from this, the attempt to reproduce pictures by carving is not to be advised. When an artist paints a picture he can give a correct idea of distance by the aid of perspective, shading, and toning of colour; but if the picture is carved in wood the two latter aids are lost, and little more distance can be given with any true effect than the simple depth of the wood. The floor of a room in the picture looks level; on the carving it is at an angle of 45°, no shading and no toning of colour coming to the help of the carver.

To complete the list under the heading of artisans' work, let us again leave the beaten track and move through the passage, at the end of which we see, No. 280A, various pieces of carving by Mr. Holmes; and in a case on the right in the great room, and also under the chimney-piece at the further end, we find some carvings, the greater portion of them being in Herne's oak, all executed by Mr. Perry. Some have been graciously lent for exhibition by her Majesty and by the Baroness Burdett Coutts,—these are numbered 319, 320, 321, 326, and are all of considerable merit, perhaps with the exception of 319, which is scarcely up to Mr. Perry's usual work.

No. 330 is a large, heavy-looking sideboard, designed, carved, and made by Mr. W. F. Jenkins; the panels are copies of pictures by Sir Edwin Landseer; the central panel, "Bolton Abbey in the Olden Time," and one or two of the side ones, are fairly executed; but it was evidently quite a mistake for the carver to undertake the design and the making of the sideboard. He should have obtained assistance or confined himself to a less difficult work. We have now treated of the leading examples sent by artisans, and will return to Bay 6.

In No. 226, a carved oak chimney-piece, by Messrs. Kendall, Milne, & Co., the sides somewhat of the Adams' style, are not in keeping with the frieze. A better, and indeed a very excellent work, is shown here by the same firm, No. 234, a rosewood cabinet of Jacobean treatment; this is eminently satisfactory.

Placed on the chimney-shelf, No. 227, "The Assumption of the Blessed Virgin," is a clever grouping, carved in pear-wood. "The Apotheosis of Don Emanuel of Portugal" (228) is a curious work, the architecture of which is very debased and absurd. We suppose it to be Spanish or Portuguese, and not of the best period.

On leaving this bay, we find a glass case containing an interesting box intended to hold a bride's jewels, title-deeds, and costly presents, and probably the marriage-lines, in safe keeping. It is of German work and dated. It is lent by Mr. T. Foster Shattock.

We now turn to Bay 7, which is devoted to Messrs. Trollope & Son. Here we have, as we of course expected, high-class work, the modern carvings being chiefly executed by Mr. Mark Rogers, a carver of much talent, who has long been in the employ of this firm. The Elizabethan chimney-piece is a fine work, as are their other exhibits,—Venetian frames, clock-case, and console-table.

In the passage leading to the further room are arranged a fine display of carved *cassoni*, of Italian Renaissance, some of them being rare specimens. They are the property of Messrs. Gillow & Co. On the same wall are from 200 to 300 examples of West-country Perpendicular work. These belong to Mr. Harry Hems, the carver, of Exeter; most of them are comprehensively classified and labelled, and illustrate the diversity of design to be seen in the wealth of carved woodwork one meets with in the churches of the West country. These specimens are exclusively from Devonshire and Somersetshire.

In the room we now enter we shall see, on turning directly to the left, the exhibits of Mr. R. A. Brangan, Nos. 285 to 291; they comprise a pair of drapery pilasters said to be by Grinling Gibbons, very stiff and formal in design: the folds of the valance being equal on either side give little grace. A fine cornucopia centre-piece, and some bunches of flowers, are very well carved, as is also an Early English bracket of large size.

We now arrive at a small selection of works by amateurs, all of them pupils of Mr. G. A. Rogers,—the panels by Mrs. Vivian and Lady Eleanor Denison, and the head of Christ by Mrs. Lockwood, are indeed achievements for ladies' fingers, while Captain Yorstoun's natural foliage, Mr. Coode's Gibbons bracket, and the Honourable Joscelain Amherst's writing-case are deserving of more than ordinary praise. Mrs. Dalison, Mrs. Bromley, and Mr. Stillwell show also encouraging work. If we now cross over to the case by the window we shall see some good Swedish work lent by Miss Giœbel, and some of the works of Mr. Perry, which we have already noticed in one of our digressions. Some curious and colossal chessmen, carved and exhibited by the Rev. R. S. Baker, will attract attention: owls serve as pawns on one side, and cats on the other. No. 344 is a clever representation of one of the black state horses, carved by S. J. MacCarthy, and lent by her Majesty.

One of the very few bits of Modern Gothic exhibited is in this room; it is the work of Mr. Harry Hems, a richly and ably carved oak coffer with a coped lid. Mrs. A. Norton, Mr. J. C. Carey, and Miss Phipson, amateurs, also exhibit here. Miss Phipson has produced a large work,—a Shakspearian sideboard, No. 331.

At the end of the room are two boldly-carved mantelpieces, by Mr. Jacquet, the deep friezes giving important character; they deserve great praise; we need not, however, admire the embattlement on the shelf of the one on the left hand. Mr. Bull's case of carvings has been mentioned. In the centre of this room is a superb collection of wood-carvings, lent by the South Kensington Museum. They are, however, so well described on the labels attached to each work that further comment is scarcely necessary.

It now only remains for us to congratulate the council of the Royal Albert Hall on the very interesting assemblage of carved works they have been able to bring together, and to invite the public to visit it.

THE PUBLIC RECORD OFFICE.

IT was our unhappy lot, a few weeks ago, to have to pay a visit to the Public Record Office in Fetter-lane, London, upon one of those terrible "pea-soup" mornings which of late have caused the Londoners to know the peculiar character of the English climate. We say it made us feel unhappy. And why? Simply because we had important work to do, and the remarkable management at Fetter-lane prevented us doing it. We had entered the palatial building which has been erected upon the Rolls estate; had passed the usual preliminary inspection of door-keeper, visitor-book keeper, and many other polite officials; had passed through the prison-looking corridors lighted by gas, and had entered the search-rooms with the intention of searching the calendars of this splendid establishment, when, to our dismay, annoyance, not to say actual knowledge of waste of our time, we found *the only rooms of utility to the public in the building were the only rooms without light!* They call this the Public Record Office, and yet on dark days it is nothing more nor less than a private lounging saloon; for all the unhappy literary men who are working therein when a dense fog or darkness comes o'er the scene are compelled to strike work and hang about until daylight once again peeps in at the skylight.

We were compelled to express our surprise at the peculiar management of an establishment which, while it presents gas-lights in the corridors, excludes it from the public search-rooms. But judge our further surprise when we were informed (upon putting a disagreeable series of questions) that the clerks' and officials' rooms are all lighted with gas, and that there are more than one gaslight in the library itself, and that in this very library are preserved, under the flicker of gas, certain priceless records, viz.,—the world-renowned Domesday Book, the original Gunpowder Plot books (containing the signatures of Guy Fawkes before and after torture), the Queen's Coronation Oath (duly signed by her), and sundry other "trifles" too numerous to mention, and yet somehow or other estimated as being worth a better lighted room than that dedicated to the public use, although the curiosities may only be inspected at indifferent periods, while the search-rooms are used hourly.

Upon our inquiry as to the cause of the gas being excluded from the search-rooms on dark and foggy days, we received the usual stereotyped reply,—the danger it would be to the records; and upon our pressing to know what danger, we were referred to the rules of the Office. We do not blame the officials who attend upon the public, for we have found them at all times very obliging and courteous; but it is their unfortunate lot to have to carry out rules which are totally at variance with the public convenience. And we cannot see any reason why gas-lighting should be permitted in the officers' rooms and corridors, and yet excluded from the public rooms, used by gentlemen not accustomed to play with gas like children; added to which there is a fact which we think has been overlooked, that the skylight would enable gas to be more safely used in that room than in the close confined precincts of the officers' chambers. But the reasoning of the authorities of the building appears to us to be as sound as the reasoning of the architect upon the introduction of gas into the Parliament Houses, when he suggested that there should be at least 5 in. space between the gas-pipes and the walls, because, should the gas-pipes get red-hot, they might set the building on fire! (See *Builder* for 1879, p. 361.)

Then, again, the reasoning as to the danger is overruled by the fact that in another Government Record depository, far more valuable as far as the present and past centuries are concerned,—the Probate Registry at Somerset House, where the vast assemblage of the most priceless relics,—the last wills of our forefathers from 1383 to the present date,—are kept, there is always to be found a plentiful supply of gas-lighting, and if it is not dangerous at Somerset

House, it surely cannot be so in Fetter-lane, where everything is of iron and stone! And, to our mind, the open coal-fire stoves in the search-rooms at the Public Record Office are certainly not safer than a thousand gas-jets would be.

These reflections are put in print for the benefit of the very public who are presumed to have daily use of the Record Office, and our visit to the establishment enabled us to spare a few moments of idleness, and glean a few facts which the public outside the Rolls buildings may like to read. Not forgetting, however, the primary fact that it is a vast storehouse for literary work, and the site very different now to what it was in old chronicler Stow's time, who tells us the lane took its name from idle people resorting there, being but a few yards from the open fields. But that was more than three centuries ago.

In the good old times they had a curious way of showing respect for public records. Wherever the king and the court went, so were the records taken, and lodged within the precincts of the palace. Even in the reign of Henry VIII. there appear to have been several curious depositories in the neighbourhood of Westminster Hall, and among them three houses were called by the respective names of "Paradise," "Hell," and "Purgatory"! But long before that, in the reign of Richard II. we have actual documentary evidence of some records having been removed from a place called "Hell" at Westminster to the Exchequer Treasury. These repeated removals of the valuable documents resulted, in many instances, in their parting company, and thus, while a portion was in London, others remained at such castles where the court may have met, and in many instances, no doubt, priceless papers were thus in time lost. At last, however, Westminster seems to have been the spot selected for a permanent seat for the records, and they were lodged in four places there, viz., a vault in the Cloisters, the Old Chapter-house, by the Tally Court, and over a gate leading from New Palace-yard to St. Margaret's-lane. And all these eventually merged into the Chapter-house,—the later depository of the two Domesday-books. Before the reign of Edward I. the Chancery records were deposited in the Tower of London, and that gave name to the Record Office there. In Edward II.'s reign the Master of the Rolls kept the records in his own house, sending from time to time such bundles as accumulated to the Tower; but this practice ended about Edward IV.'s reign, and the chapel of the Master of the Rolls's house was used, which caused a Rolls Chapel Office to be erected.

We find a Keeper of the Rolls of King's Chancery at the wardrobe in the Tower, appointed as early as 1295, and a quarter of a century later proper persons were appointed to index and classify the documents. We are told by Mr. Thomas, the late secretary to the Record Office, that in the twentieth year of Edward II.'s reign four bagfuls of documents seized in Swansea Castle were taken to Queen Isabella's chamber in the Bishop of Hereford's palace, and that some thirty years ago Mr. Francis discovered at the castle the original contract of affiance between Edward of Caernarvon, Prince of Wales, and the Princess Isabella, daughter to Philip of France, dated at Paris, the 20th May, 1303,—a document probably left behind when the others were removed, and that had remained undiscovered for more than 500 years. This interesting record was printed in the "Archæologia Cambrensis" in 1848. Among other removals of documents were some chests of Common Pleas papers in the 39 Henry VI., from the old Priory of St. Bartholomew, Smithfield to the Tower, where, in the third year of Edward VI., when a search was being made for a good place to store gunpowder in, a number of documents were discovered which had lain so long in the damp and lime that a great many had perished!

Great credit must be due to Queen Elizabeth for having ordered proper rooms to be prepared at the Tower for the preservation of the records, and she informed the then Master of the Rolls that it was not meet that they should remain in private houses and other places, but that they ought to be as carefully looked after as her crown and jewels. But her Majesty's commands were never executed, and the records remained at the Rolls Chapel; except that we find a special letter was written from the Council to the Lord Mayor in 1599 desiring "that the inhabitants in Chancerie-lane may keepe watch and warde there for safegarde of the Rolles." Prynne, the record-keeper in Charles II.'s reign, reminded the king of the zeal of his ancestors to preserve "the sacred reliques, such peerless jewels," not only from fire, sword, and water, but also from moths, canker, dust, and cobwebs; and subsequent events will show that Master Prynne's hint might have been better taken than it appears to have been. It was easy to express an interest, but not so easy to prove it. But he went still further in his description,—a description that painfully tells us how things were managed in the days of our forefathers. "I designed," says he, "endeavoured the rescue of the greatest part of them from that desolation, corruption, confusion in which (through the negligence, nescience, or slothfulness of their former keepers) they had for many years by past layen buried together in one confused chaos, under corroding petrifying cobwebs, dust, filth, in the dark corner of Cæsar's Chapel in the White Tower." Even the soldiers and bowmen employed to clear them grew weary of their task, and yet "in raking up this dung-heap (according to my expectation), I found many rare antient precious pearls and golden records." This wholesale denunciation of the system of keepership ought to have been sufficient to cause immediate remedy, but things were little better in Queen Anne's reign, and in that of her successor. A special Lords Committee was appointed to make inquiry, who duly reported in 1719, and, among other things, they stated that there was a large quantity of the celebrated Star Chamber papers, but that all the decrees of that Court were lost. "The last notice of them that could be got was that they were in a house in St. Bartholomew's-close, London." All searchers at the present Record Office have bitterly felt the want of these priceless documents, but they possibly went the same way as a great many other national documents have gone since,—to the waste-paper dealers or butter-shops, where a portion of a Common Pleas docket-book was found in 1832, where some of the pipe rolls vanished to, and where we have purchased some literary curiosities from time to time. And Mr. Pym Yeatman, in his "Exposure of the Mismanagement of the Public Record Office," published four years since,—a very remarkable tract,—tells us that the Committee in Lord Romilly's time "did a good deal of mischief, for they had destroyed at that time 100 tons of papers from the War Office, 165 tons of Admiralty papers, and a large quantity,—some 60 tons,—of other Government papers; and since then there have been probably at least 100,000 tons of records thus improperly disposed of"! This, it must be acknowledged, is a terrible thing to be thought of as actually done in this latter half of the nineteenth century, but although there has been accumulated a large amount of useless papers, is it always that these useless papers alone are destroyed? It is only three years ago that a special Act of Parliament permitted a further destruction of Records. Let us hope, for the sake of our literary successors, that due respect will be shown to the actual meaning of the Act.

In the first year of this present century a royal commission was appointed to "inquire," &c., about the public records, but from time to time, for thirty-six years, one commission succeeded another to inquire about its predecessor's work, until their extravagances really became alarming. We are told by Mr. Thomas that they cost 12,000*l.* a year for these thirty-six years, and that at the end of the term Parliament voted and that at the end of the term Parliament voted 24,000*l.* to pay up their debts! In 1837, the Secretary of State obtained the Master of the Rolls (Lord Langdale's) permission to transfer to the Keepership of the Rolls the whole of the records, &c. By a special Act 1 & 2 Vict., cap. 94, dated 14th August, 1838, the present Public Record Office (not the building) was established, and at first the rules embodied searches to be allowed by small fees; subsequently these were abolished, and now the office is open free to all comers subject to such rules and orders about the reasonableness of some of which we might have a few words to say. Every State or legal document now finds a final resting-place in Fetter-lane, but the limitation of time in which the reader is enabled to see them is, in many instances, quite at variance with the public convenience.

We will now give a few notes about the origin of the present palatial building on the Rolls Estate. The want of such a central depository was felt from the earliest times, and some extraordinary payments have been made for putting up temporary houses for the records elsewhere,—for instance, 16,000*l.* was spent on the Somerset House vaults, and 10,000*l.* at Carlton Ride,—until it was finally agreed to erect the Fetter-lane building, which, from first to last, must in itself have cost something like 50,000*l.* alone. It was in 1831 that Sir John Leach, then Master of the Rolls, upon reviewing a report from the Clerk of the Records, of the great want of room for them, memorialised the Commissioners of the Treasury to take into consideration the special advantages that would accrue by a general repository for the documents being erected on the garden ground belonging to the Rolls house, the Rolls estate being about two acres in extent, "the house having, from the change of times and the habits of society, ceased to be the desirable residence which it was some years since." It had, in fact, been given up as the dwelling-house of the Master in 1826, Robert Lord Gifford being the last to inhabit it, and the late Lord Lyndhurst, then Sir J. S. Copley, being the first to prefer a mansion in the West to the one in the City.

The history of the Rolls carries us back 850 years. Newcourt, in his "Repertorium," gives a long account of its descent, telling us it was founded on the east side of Chancery-lane, in the parish of St. Dunstan-in-the-West, for the converted Jews by Henry III. in place of a Jews' house to him forfeited, in or before the year 1233, and was called "Domus Conversorum," he building for them a church, subsequently called the chapel, giving them 700 marks yearly, and afterwards adding to the gift certain lands and tenements, together with the church of St. Dunstan. "In the which house," says Stow, "all such Jewes and infidels as were converted to the Christian faith were ordained and appointed under an honest rule of life, sufficient maintenance, whereby it came to pass that in a short time there were gathered a great number of converts, which were baptised, instructed in the doctrine of Christ, and there lived under a learned Christian appointed to govern them," and such as had been converted in the realm received relief from this establishment,—one William Piers, in 1382, upon being baptised, being awarded two pence a day for life. When so many Jews were hanged in 1279 for falsifying the king's coin, Edward I. divided their estates between the Friars Preachers and this house. "Yet, for all this encouragement the Preachers made no work of it, the Jews remained so still; they were the same usurers and brokers as before, and the same infidels; only some poor Jews, rather to get a livelyhood than out of affection to Christ and Christianity, pretended to be converts; for about ten years after they were all banished the kingdom"; so that there was little good work to be done here, and as a result, by patent, dated the 11th of April, 1377, the office of keeper was annexed to that of Master of the Rolls,—the first to hold the office being William de Burstall, the parson of Flamsted, Herts, who, we are told, "was sworn in Westminster Hall, at the table of marble stone." From this date to the Reformation each master was in holy orders, several holding high offices in the Church, and four succeeding to the bishopric of London. But by patent, 26 Henry VIII., the king granted the office to the celebrated Thomas Cromwell, who held it until the appointment of the then Attorney-General, Christopher Hales, July 10th, 1536, since which date to the present time, we believe, a member of the legal profession has held it, the present Master having been Solicitor-General, and, as a coincidence, is a member of the Hebrew persuasion: thus showing to a certain extent the vicissitudes of an ancient foundation, originally formed for the benefit of the very community of which the present ruler of the house is a member,—six centuries and a half later. Before we quit the personal narrative it is worthy of note that in Henry VII.'s reign the mastership was held by *two* persons, Robert Morton, the late Bishop of Worcester, and William Elliot, their patent being dated November 13th, 1485, the only instance on record, and somewhat extraordinary, from the fact that Morton had already a grant of the office for life; but as he was in waiting upon the king, he recommended Elliot, who was in reality to perform the actual duties; and although the Rolls is part and parcel of the Court of Chancery, they are, nevertheless, distinct courts, the Lord Chancellor sitting in his own court, while the Master of the Rolls sits in his own "house," and has done so from time immemorial; at all events, there is an entry to

that effect in the earliest books of the office, the thirty-seventh year of Henry VIII.'s reign, folio 253, the Master sometimes having also taken upon himself to hold his courts at his country residence, as we read that Sir Harbottle Grimston did at Gorhambury, and Sir John Trevor at Knightsbridge.

Now, as regards the "Rolls House," there does not appear to have been any collective history transmitted to us, except that in the very year of Sir John Trevor's death (1717) the first stone was laid of the building next the Chapel. An Act of Parliament in 1661 had permitted the Master to grant building leases of the property, and about 1719 some 30,000*l.* were expended in erecting thirty-nine houses in as "substantial and complete a manner as ingenuity and money would provide." Hence some hundred years afterwards the rentals brought in 7,282*l.* per annum, which, by statute passed in 1837, were vested in the Crown, the Master receiving a salary of 7,000*l.* in lieu thereof, and his fines. The chapel, Pennant informs us, was begun in 1617, and completed at a cost of 2,000*l.* It was consecrated by George Mounteigne, bishop of London, and the sermon preached by the celebrated Dr. Donne, the Dean of St. Paul's, and subsequently vicar of the adjoining church of St. Dunstan's. It is a very interesting little edifice, approached through a gateway between 14 and 15, Chancery-lane, out of sight to the ordinary passer-by, and contains some curious monuments worth inspection. Among them, writes Pennant, "my countryman, Sir John Trevor, who died Master of the Rolls in 1717, lies here. Wisely his epitaph is thus confined:—'Sir J. T., M. R., 1717.'" Some other Masters rest within these walls; among them Sir John Strange, but without the quibbling line:—

"Here lies one honest lawyer,—that is *Strange*."

By the Act 50 George III., c. clxiv., the sum of 200,000*l.* was authorised to be laid out of the suitors' fund for the building of offices in the Rolls Yard, salaries, &c., and stocks in the Three per Cent. Consols and Three per Cent. Annuities were purchased, to enable the requisite buildings, &c., to be proceeded with from time to time, without having recourse to further Parliamentary aid. But this was not all of the unclaimed moneys of the Court of Chancery that were invested during a hundred years since the passing of the first Act in George II.'s time; for reports show that nearly a million of pounds remained for distribution whenever the fortunate rightful owners were forthcoming! It was for embezzlements and other improprieties of this special fund that the Earl of Macclesfield, the Lord Chancellor, was tried by the House of Lords, and fined 30,000*l.*, and removed from office in 1725.

In 1823, the Chancellor of the Exchequer visited the Tower with a view of looking at the state of the Records, when he reported his decided opinion that it was useless to waste further moneys on improvements there, but "that a proper building ought to be immediately erected in some more accessible part of the metropolis." This recommendation was not carried out, even by an Act being passed, until 1838, only fifteen years afterwards, but just sufficient time between to enable some of our valuable records to suffer from every kind of evil possible. On the 7th of January, 1839, Lord Langdale, then Master of the Rolls (following Sir John Leach's opinion), suggested the Rolls estate as a fit site for the new building, but the Treasury, after more than two years' reading the letter, answered his lordship by saying that the Victoria Tower, Westminster, was about erection, and that might prove a suitable place! The reader may be certain this met with the Master's decided opposition, and this was further increased by the report of the late Mr. Braidwood, of the London Fire Brigade, in December, 1843, that the Record Office at Carlton Ride was in great danger. But, great danger or not, the powers that be were not to be moved out of their usual course, for, for what they evidently cared, all the national documents in the country might have been blown up by the powder-magazine at the Tower, or destroyed by the rats, mice, and damp elsewhere, sooner than they would move out of their jog-trot red-tapeism. Still, seeing how such matters are carried out to-day, the authorities must have then been wonderfully active upon receipt of Mr. Braidwood's report; for after further correspondence, Mr. Barry, the architect of the Houses of Parliament, by order of his superiors, on the 17th of February, 1845 (only fourteen months after the report of great danger) acquainted the Master that the roofs of the Parliament Houses were ready for the storage of the public records. The practical reader will evidently laugh at this remarkable result of construing Chancellor Vansittart's meaning of the word accessible; and the reader will also laugh when he is told, and agree with the result arrived at, that the record officers, upon inspecting this accessible site in May, 1845, found "that the roofs were unfit places for the public records. Instead of capacious floors which they expected to find, they ascertained that the central passage through them was to be only 4 ft. wide and 6 ft. 10 in. high, on each side of which were to be fitted up 140 little cells or closets, enclosed by open ironwork doors, and lighted by a small window, which was to serve also to light the passage. Around the whole of that portion of the roofs intended for the reception of the records were chambers or ducts for the vitiated air of the buildings below, and it was deemed probable that should a fire take place in the buildings beneath them, these ducts would serve as conductors of the fire to the records above." This was bad enough for the records, but let the reader imagine the searcher's convenience in getting at them. Like most Government early plans, this one fell to the ground, and it was a good job for literary men it did so.

We will not go into all the details and correspondence after this, except by saying that it is a mercy handed down to us to be thankful for, that, during all these exhibitions of officialism, the public records were not all destroyed. In the year 1847, and again in 1848, the Westminster Improvement Commissioners offered sites in Victoria-street; in the following year, and in 1850, some orders and reports from the Board of Works, and the Woods and Forests architect, were considered. Mr. (afterwards Sir Jas.) Pennethorne, submitted plans, showing that the Rolls estate would be large enough for a proper building; estimates were laid before Parliament showing the probable cost would be 45,320*l.*, including fittings; and (it is a fact) 30,000*l.* was actually voted on account, while the foundations of the present buildings in Fetter-lane were completed in January, 1851; thus realising the suggestions of Mr. Vansittart for an accessible site, and Sir John Leach's and Lord Langdale's propositions, twenty-eight years after the recommendation that an immediate building should be erected,—exactly twenty years after Sir John Leach's proposition that it should be erected on the very site it now stands, and thirteen years after Parliament had passed the special Act for such erection! And yet, in this present year, 1880, although completed to a certain extent, the building intended is not in its entirety. All that vacant ground fronting Fetter-lane, and extending to the nineteen houses in Rolls-yard and Chancery-lane, has yet to be utilised, and we cannot but help thinking that the rentals that might have been obtained for a number of houses needlessly pulled down could have been for years employed in augmenting a fund for that utilisation. A plan and engraving, showing the structure as originally designed, will be found in the *Builder* for October 11th, 1851, pp. 642-3. The first stone had been laid by Lord Romilly the 29th May of that year, but the building was not opened to the public until the month of May in 1866. Built of stone, slate, and iron, it may be considered as fire-proof as is practicable. Inside the building, in the vestibule, is a bust of Lord Langdale (which might look better by having "the dust of ages" removed from it), and in the circular search-room (where gas is so much needed, as also in the long-room, and so entirely excluded, although it is to be found in the corridors and officers' rooms), there is a bust of Lord Romilly, while on the exterior of the tower over the portico are statues, by Mr. Durham, of four queens,—Matilda, Elizabeth, Anne, and Victoria.

Having given general details of its history, let us now give a few notes from the official report of the construction of this now world-renowned building. It is, as we have said, fire-proof; "if a fire were to occur in one room it could not penetrate into the next," consequently the official argument of gas being dangerous in the search-room contradicts this printed report. "The walls are built of brick, and the several fronts faced with Kentish rag and Portland stones. Besides the central tower of two tiers, it contains four stories, the basement called D, and three floors above it, respectively named A, B, and C." There is another floor recently erected, called E. "Each room in which records are kept is fitted up with cast-iron presses having slate shelves. No woodwork of any description, except a fall-table fixed in the wall, is in these rooms. The division walls between each room are of brick. The ceilings are arched in brickwork with iron girders, the staircases are cast-iron, and the floors are formed with cast-iron or wrought and cast iron girders and brick arches, with hollow fire-clay tile-paving or concrete filling, but on the basement floor the paving is of Portland stone. The corridors and hall are paved either with Portland stone or tiles on brick arching. The staircase near the east end of the main corridor is of stone, the other staircases are of wrought and cast iron." The casements and skylights are of iron, and wrought-iron doors to all rooms except the ground-floor of the east wing, the communication here being cut off at night by revolving iron shutters. The building is detached, but there is a wooden bridge covered with corrugated iron, and provided with an iron door connecting staircase, with the second-floor of Rolls House. The roof generally is constructed of cast-iron girders, wooden principals, struts, purlins, and boarding, and covered with slate; the flats and gutters are laid with lead. The girders carry brick arches forming the ceilings of uppermost rooms. The roof of corridor is arched in brick. "The roof of the Round Search-room is constructed with cast and wrought iron, the portion between the springing and skylight being filled in with hollow bricks, plastered inside and covered with asphalte and lead." Query: Where is the danger here? The supply of water is from fire-cocks on each floor, the pipes charged from tanks in the central tower, holding 4,400 gallons. The pressure at the fire-cocks on the ground floor is about 53 ft. There are within the building seventeen cocks, thirty-four buckets, thirty-nine 40-ft. lengths of hose, with keys and eighteen branches. "There is not any fire-engine specially for this building, but one is kept in the Rolls-yard, which would be of little use in case of fire, the buildings being extensive." Police are on duty here day and night. The warming is by hot-water apparatus. "The gas-burners (except those in the offices) are protected by wire-guards." Does this paragraph mean that there is no protection to the gas-jets in the rooms? For instance, the library? If so, why refuse a securely-protected gas-lighting to the search-room?

We are told that the Rolls House is detached except on the south side, where there was formerly an entrance from a private room now bricked up. The external walls are brick, with stone front dressings. Internally the divisions are chiefly brick with some wood partitions. The roof is of wood and tiled, with lead flat and gutters. The floors of the rooms are timber and boarded, with plaster ceilings. The floor of the Rolls Court is stone over brick arching. Principal and back staircases are of stone. There are no fire-cocks in the building, but there are sixteen buckets. The fire-engine in the yard is a manual for twelve men.

The description of the Rolls Chapel is given as follows:—"The walls of the chapel are built of stone; those of a record-room over it are of brick. The building is detached except on the south side, and where the small room on the north side already mentioned connects it with the Rolls House; on the south side the party-wall is of stone. The roof is constructed of wood and slated with lead gutters. The ceiling of the chapel (plastered) is formed by the wooden floor of the record-room above, which is approached by a stone staircase in the Rolls Chapel offices, inclosed by brick walls. The floor of the chapel is paved with stone. It is heated by means of the apparatus in the basement of the Rolls House. Gas is not used."

Having thus given as clear an account as our space will permit of the history of the establishment to which all the State and legal documents of the country (with few local exceptions) are now periodically transferred, but which in former times found a resting-place in all manners of nooks and corners too numerous to mention, we will now say a few words about the principal treasures stored there.

First and foremost is the world-renowned Domesday Book, kept under glass cases in the library, in the very room where gas is used. It is composed of two volumes, which, curiously enough, are not the same size, one a folio, of 382

double pages of vellum, each page having double columns; the other is a quarto volume, of 450 double pages, written in single column. Both are in magnificent preservation, written in bold and plain hand on skins of vellum. The larger book comprises the surveys of thirty-one counties; the smaller only the counties of Essex, Norfolk and Suffolk, part of Rutland included in that of Northampton, and part of Lancashire in York and Chester. Curiously enough, the counties of Northumberland, Cumberland, Westmoreland, and Durham are not described, with the exceptions named. Neither is London mentioned, and the surmise is that our capital either had a book specially for itself, now lost, or that it was left out for purposes not to be explained, although the county of Middlesex is given. Domesday is supposed to have been completed about 1086, or nearly eight centuries ago, and we are told by contemporary records that its descriptions are wholly reliable and perfect, the object being that every man should have his rights, and not usurp those of others, or that the persons who had the honour of a place in it were taxed for their land by the Conqueror. Its name is either derived from its authority, or it is a corruption of Domus Dei, having being deposited in the King's Treasury called Domus Dei, at Westminster or Winchester. Any way, it was anciently kept by the side of the Tally Court of the Exchequer, under three locks and keys, until it was deposited in the Westminster Chapter-house in 1696, whence, at the restoration of that building, it was removed to the Record Office some twenty years ago. At the beginning of this century its binding was of wooden boards strengthened by brass plates, with bosses arranged in patterns. Insects appear to have got into the wood, and the two volumes were rebound in a very handsome manner (black morocco, blind tooling, and silver knobs) without injuring the contents, by Rivière, and cost, we have been told, 300*l*. A massive iron chest contained them for generations, which, with the book in its new dress, will be found illustrated in the *Builder*, Sept. 14th, 1861. There is also an abridgment of the book in one volume evidently written in the reign of the first Edward. And, as a final note, it may be interesting to record that a manuscript "Domesday Book, 1083," was lot 1995 in the sale of the Duke of Chandos's Library in 1747, and fetched the nominal price of 46*s*.!

Here, too, in the Record Office, is preserved the celebrated Treaty of Peace between Henry VIII. and Francis I. ("The Field of the Cloth of Gold"), with the gold seal attached designed by Benvenuto Cellini. The volume is beautifully illuminated. "The Golden Bull" which Clement VII. sent to Henry VIII., and so called from the massive gold seal attached; the two Gunpowder Plot books, containing all the original documents relating to the discovery and trials, the original letter sent to Lord Mounteagle, which prevented the catastrophe, the signatures of Guy Fawkes before and after torture, &c. Then there is the Coronation oath of her present gracious Majesty, with her signature; original papers relating to the dissolution of monasteries by Henry VIII.; besides State papers, rolls, charters, and documents of every description, which, to an historian, genealogist, and antiquary, are of priceless value, extending back as they do for centuries. The calendars of State papers as issued periodically by order of Parliament, under the authority of the Master of the Rolls, are, perhaps, the most useful volumes of modern times to persons unacquainted with the Record Office, and the only fault we can find is that the volumes are issued so few and far between. The old Record Commissions, as we have said, printed some very useful volumes at a very great outlay. But the Public Record Office is, without doubt, the best field open for historical and genealogical researches,—the only drawback being to a stranger, that it is like looking for a pin in a haystack (perhaps worse), and to those that use the office the time taken to bring a document is found to be a "trifle" too long.

Huddersfield Market-Hall.—On Wednesday afternoon the Mayor of Huddersfield opened the new Market-hall, which has been erected from designs supplied by Mr. Edward Hughes. The Council have bought the market rights of Sir John Ramsden, to whose ancestor Charles II. granted them, for a sum of 38,000*l*. odd. The hall itself will cost 28,000*l*., that being the amount of the contracts. The hall is a structure in the Decorated Gothic style.

COMPLETION AND COST OF THE ST. GOTHARD TUNNEL.

COST OF TUNNEL WORK IN GENERAL.

THE triumphant completion of the St. Gothard Tunnel did not fail to justify the incredulity which we expressed as to the truth of the telegram from Paris which announced a difficulty that threatened to prevent the use of the line. It is not with regard to this enterprise alone that it is desirable to recall attention to the fact. We fear that there can be little doubt that the telegram in question was fabricated for stock-jobbing purposes. It was at once so explicit and so much in the nick of time as to lie under very grave suspicion. It is worth while to cite the exact words, as a caution to those whom it may be attempted, hereafter, to frighten out of their share property. The extraordinary fluctations in the prices of water companies' shares may be pointed out as a recent example of the way in which the *bonâ fide* investor may be perplexed by pure speculation. "It appears," said the telegram, "that already in 1878 the pressure of the earth on the roof and against the sides of the tunnel was such as to completely destroy the masonry almost as soon as built, and since then every method of strengthening the work has been tried in vain, wooden supports and even granite arches one mètre and a half thick having been entirely crushed." Our own practical acquaintance with tunnelling, both in and out of England, led us to disbelieve this very precise statement. We supplied our readers with the data, as far as they were at our command, on which this disbelief was based. And as the next news that came on the subject was that which announced the meeting of the two headways, it is pretty clear for what end the account of the "delay to a very great extent of the completion of the tunnel was fabricated." It is probable that speculation on the subject was not so much contemplated in the English, as in the French, mart. Thus the correspondents of the English paper may have sent, in good faith, a *canard* floated for foreign use. But the warning to the English shareholder is significant.

The high temperature which is still found to prevail in the centre of the Mont Cenis Tunnel is a natural phenomenon that demands careful study. So long as the bore was advancing under the mountain, an increase of temperature was to be expected. But now that the passage is completed, and the wind sweeps through the bore (which it does in the morning from north to south, and in the evening from south to north), none of the causes to which increase of heat have hitherto been attributed are adequate to account for a steady temperature (when there is no draught) of from 80° to 100° Fahrenheit, in this part of the tunnel. We think that there is very great reason for suspecting that the vicinity of some subterranean source of heat, of a volcanic nature, is here indicated by the thermometer. There was some want of judgment displayed by the inventors of the *canard* above referred to in attributing abnormal activity to the force of gravity, when so much more alarm might have been easily excited by announcing the approach of the miners to a vein of red-hot lava.

It is stated by the Paris correspondent of another journal that the official statement made by the Paris Federal Council shows that up to March 1st, the amount expended on the works of the tunnel was 45,600,000 francs, or 1,824,000*l*. Of this, 21,800,000 francs were expended on the Airolo side, and 23,200,000 francs on the Göschenen side. The operations remaining to be completed will, it is added, cost about 176,000*l*., bringing the total cost of the tunnel to 2,000,000*l*. sterling, in round numbers.

The length of the tunnel was estimated, in 1874, at 16,295 yards. In 1875 the axes of the tunnel were verified, and the length remeasured. The deviations from the exact centre lines were then found to be 6 in. at 2,620 yards eastward at the north end, and 2 in. westward at 2,250 yards from the south end. The length as remeasured was less than the former figure by 27 in. The cost thus arrived at is 122*l*. 7*s*. per linear yard. The difference of level between the surfaces was 1·97 in.

This cost compares favourably with the other great Alpine tunnel, the Mont Cenis, the preliminary estimate for which was 2,600,000*l*., or 194*l*. per yard. In his work on Practical Tunnelling, Mr. D. K. Clark says that "it is supposed that the actual cost amounted to 3,000,000*l*., which is equivalent to 224*l*. per yard. The cost of some of the chief tunnels completed since the commencement of the railway system is as follows:—

Name.	Place.	Material.	Cost per yard run.
Limehouse	Footway under Thames.	London clay	£30
Lydgate	L. & N.-W. Ry.	Coal meas.	30
Guildford	L. & S.-W. Ry.	Chalk	30
Salisbury	Ditto	Ditto	30
Petersfield	Ditto	Ditto	30
Netherton	Birm. Canal	Marl	30·25
St. Catherine's	L. & S.-W. Ry.	Sand	40
Honiton	Ditto	Marl and green sand	50
Bletchingley	S.-E. Ry.	Clay	72
Buckhorn Weston	Sal. & Yeo. Ry.	Clay	72
Chicago	U.S.A.	—	88
Batignolles	Paris	—	95
Box	Gt. West. Ry.	Oolite & marl	100
Saltwood	S.-E. Ry.	Sand	113
St. Gothard	—	—	122·7
Kilsby	L. & N.-W. Ry.	—	145
Thames	—	Clay and silt	1299

The two last figures are from our own notes, as are several of the others. We observe that Mr. D. K. Clark, whose figures generally agree with our own, gives 125*l*. per yard as the price of the Kilsby Tunnel, and 1,137*l*. per yard as that of the Thames Tunnel, taking the length of the former at 2,398 yards, and that of the latter at 400 yards.

Mr. Knight, in his "Practical Dictionary of Mechanics," gives the price of the Kilsby Tunnel at $262 per linear foot, which is somewhat higher than our own figures. He also gives the cost of the Hoosac Tunnel, through the mountain of that name, on the road between Troy, N.Y., and Greenfield, Mass., at $300 per linear foot, which is the same figure that he gives for the Mont Cenis Tunnel. The Hoosac is the longest tunnel in the United States, viz., 4·75 miles long. The section is 24 ft. wide and 20 ft. high. It passes through a double range of mountain, the summits of which are respectively 2,508 ft. and 2,216 ft. above the sea-level. A valley interposes between these ridges, and in this, about half-way through the tunnel, is situated the single shaft, which is 1,028 ft. in depth. This work was completed, with several interruptions of its progress, in seven years. The levels, when the faces met, are said to have agreed within 1¼ in., and the error of alignment was nine-sixteenths of a second. The gradient was 26·4 ft. to the mile.

That the Kilsby Tunnel, of only 2,398 yards in length, should cost more per yard run than a tunnel of seven times that length through the heart of the Alps, may seem strange to those who are unaware that the main cause of uncertainty, and to a great extent of cost, in tunnelling, is water. This is evinced by the enormous cost per yard of the Thames Tunnel, which, with the extraordinary ingenuity shown by Brunel in the construction of the shield, and in the formation of an artificial bed to the river by bags of clay, was carried in parts through something little better than river-silt. In the Kilsby Tunnel an actual quicksand was tapped. So great was the cost, that at one time it was anticipated that the works would have to be abandoned, and the line diverted; and the enemies of the enterprise were confident in their predictions that the line of rail would never be completed from London to Birmingham. This bed of sand, though it extended for 450 yards, had been missed by the local borings. Pumping machinery had to be provided, under the direction of Mr. Robert Stephenson, in order to drain the sand, and the quantity of 2,000 gallons of water per minute is said to have been raised for nine months. This difficult work is lined with 27 in. of brickwork, set in cement. In the Box Tunnel, the flow of water was so great that the works were stopped for six months, and as much as 32,000 hogsheads per diem was subsequently pumped out before the water could be got under.

With regard to the pressure in tunnels, it is the opinion of most engineers that this is more troublesome in shallow than in deep cuttings. Mr. Sims, a great authority on the subject, accounts for the fact on the supposition that in shallow ground the whole superincumbent mass presses directly downwards; while at greater depths a natural arch is formed by the sideways pressure of the earth. In the Stapleton tunnel, which is quoted as an example, the ground was not more than 40 ft. above the arch. When the autumnal rains set in, the ground sank, so that the line of the tunnel was marked by a longitudinal hollow on the surface, and a portion of the work, which was built with four rings of

brickwork in mortar, fell in. It had to be rebuilt with five and six rings of bricks.

An accident of a similar nature occurred to the Ménilmontant tunnel, *Chemin de Fer de Ceinture*, Paris. A portion of this tunnel, which passed under the cemetery of Père la Chaise, sank down, making a void in the cemetery 11 yards long by 6½ yards wide, and carrying 34 tombs into the opening. Our readers may remember the fall of an arch on the Metropolitan District Railway, near Blackfriars Bridge, on which we commented at the time of its occurrence. And we may here take the opportunity of remarking that the construction of the shallow tunnel work on the Metropolitan and Metropolitan District Railways, with so little failure, is an achievement which reflects the highest credit on the engineers of those lines, and on the profession to which they belong.

FROM THE BANKS OF THE SEINE.

For the English resident abroad, an impartial looker-on at home affairs, it is impossible not to perceive the great differences that exist between his own country and that in which he is living. Such a moment as this, when England is racked from end to end by the excitement of a "General Election," excluding momentarily every other question from consideration, offers a doubly-striking contrast to the state of affairs on the banks of the Seine. Here, in Paris, the general interest taken in the various important political questions which have lately been occupying public attention, has not interfered for an instant with the due public consideration of the numerous professional and artistic questions which never fail to make their appearance with the spring; it is this interest which forms one of the marked differences to which we have referred as existing between our country and France. From certain quarters we hear from time to time complaints that "Art" is a subject which receives far too much attention in the present day. But the "High Art" discussed in this too-often "intense" manner partakes far more of the character of an erratic and artificial importation (perhaps affectation is the word) than of the sturdy, well-rooted, and acclimatised product it should be the endeavour of the public and the Legislature to render it. It is a belief with a very large mass of English people, which only a residence or a series of visits abroad dispels, that the sentiment of artistic appreciation is implanted in the breast of every foreigner; and much is talked about the influence of free museums and other sources of public art education; and though this belief is far from being justified by fact, it is impossible to deny that this appreciative sentiment reaches much lower down in the social scale abroad than at home, while it may be said, without fear of contradiction, that it would be impossible to find abroad any of that affected interest in art matters which sometimes leads to offensive results in English society. And so it is that "art" is regarded by all thoughtful minds on the Continent in its proper light, as a stern reality, one of the great powers of a nation. In England it is left too often to the consideration of a certain number of persons whose superior social position, perhaps, it is which leads to the imitation of their tastes by those who otherwise feel no genuine interest in such tastes. But in the limits of a few paragraphs we have entered on a question somewhat difficult of treatment. Here, on the banks of the Seine at the present moment, the whole artistic and dramatic world is busily engaged. After the works for the *Salon* had been "sent in," and the dead silence that precedes the storm had followed the momentary disappearance in the Palais de l'Industrie of all these thousands of works of art, a whole series of subjects of professional, artistic, and dramatic interest has come upon the carpet, for the Paris season is rapidly reaching its climax. While public attention has been divided between the enthusiastic welcome of Verdi, who appeared in his own person to lead "Aida" at M. Garnier's Opera-house; and the equally warm welcome to a dramatic author, who is to take his rank among the representative Frenchmen of this century,—the Vicomte de Bornier, who, by his "Noces d'Atila," has half-opened the doors of the Academy,—several competitions, among them the preliminaries of the Prix de Rome, have been considered; the Commission of the Budget of the Fine Arts is engaged on its work; and a series of questions has been brought before the notice of the Under-Secretary of State for the Fine Arts.* Into the question of the subsidised theatres (one, however, which several recent incidents have rendered somewhat "burning," and which might afford matter for reflection to the promoters and opposers of the formation of a National Theatre in our country) our limits do not enable us to enter. Among the other interesting questions raised by the chairman of the commission is the creation of a "museum fund." It appears that the Chambers allow each year some 6,000*l.* for the purchase of works of art to enrich the national collection, but when this grant is not employed, it is annulled at the close of the year, to avoid which position the directors of the museums not unfrequently make use of the sum in the purchase of unimportant works. To remedy this, M. Lockroy, the chairman, has proposed that a special "museum fund" be formed, in which the sums unemployed shall each year be placed. The advantages of this step are evident, and would be so, particularly in the case of any work of exceptional value presenting itself for purchase, when such a fund would relieve the Government of the necessity of having to demand from Parliament a special grant. M. Lockroy has further proposed an important change that the curators of the museum should not alone be entrusted with the purchase of works of arts, but that they should be assisted by a commission of artists and art-lovers appointed by the Government. A further amendment has been put forward in the proposition that henceforward all the public edifices possessing in any degree an artistic character should be placed under the direction of the Minister of the Fine Arts; at the present moment the Minister has power only over the collections of the museums and the historic monuments. The diocesan edifices are dependent on the Minister of Public Worship. The national palaces and the actual buildings of the museums depend on the Minister of Public Works. From an administrative as well as an artistic point of view, it is believed that there would be a great advantage in the union under one Minister of all these scattered but intimately connected services.

Such changes, or propositions of change, are constantly being made in this country, and in numerous cases are attended with immediate results, a fact which points to the existence of a much broader and more genuine interest in the consideration of art matters abroad than in England, where such questions are relegated to the background by our legislators, a process which leaves their management to the hands of private, and hence to a great extent practically powerless, hands. The simple, and only too evident matter of the opening of our museums on Sunday meets with objection, in which the artistic and social value of such a movement is entirely put out of the question, and the action in this matter is a characteristic specimen of English public and Governmental interest in the great question of "art education."

Among some notes taken from an antiquated copy of that invaluable encyclopædia, the *Edinburgh Review*, of the year 1811, we happened to light not long since on the following passage, which occurred in an interesting article on the life and works of that cruelly-treated artist, James Barry:—"Public bodies need never appear to be acquainted with accusations or insinuations levelled at them in print, and perhaps it is in all cases their wisest way silently to avail themselves of them for purposes of amendment when true, and silently to despise them when false." False or true though the accusations and propositions levelled at our public bodies may be, the difficulty of moving them appears now, in the year of grace 1880, as equally great as in 1811. We have mentioned poor James Barry, and, incidentally, the recent production of M. de Bornier's "Noces d'Atila," the classic character of which shows how far from defunct is the modern French school, which critics so constantly speak of as dead. It is such a play as that of M. de Bornier's that rouses one's regret at the real position of our own artists and dramatists, and when one remembers how slightly James Barry's classic instincts were fostered by his contemporaries,—Haydon, to our shame, suffered from the same neglect,—we can indeed sympathise with the need both their natures expressed, in a frivolous age which could not appreciate their powers to execute in their native country works which by the grandeur of their conception and size might raise our art to the level of that of the foreign schools. Art is more lucrative now than in the days of James Barry, or, indeed, than those when Wilkie received from a noble patron, for his "Blind Fiddler," 15*l.*, with the admonition that he had better not in future demand such excessive prices! What a recollection to bring up while the echoes of the familiar hammer of M. Pillet have not died away in the galleries of the palace of San Donato. Classical art, "*le grand art*," is still terribly deficient in English exhibitions and on the stage; it is alone in architecture that it has ever had with us its full "swing." Indeed, it is sad to have to admit the absolute truth of the criticism of a well-known French art-writer on our English exhibitions, recently expressed in the page of the *Monde Illustré*. Is it not to a great extent true what M. Ernest Chesneau's old engraver says, that in looking through the Academy he does not find any appearance that the English artists know even of the existence of the "Odyssey" or the "Iliad," or that inspiring poem the "Æneid"? "Not a single 'picture of style'" [the word "style" is itself in England but very imperfectly understood], "not even a semblance of a tendency towards '*le grand art*,' not a chlamys, not a peplum, not one of those superb helmets, with their short, stiff crest, not a shadow of a buckler, not a trace of a cothurn, nothing which recalls the traditional old man, with his long beard and white hair held back by the purple or the yellow band, nothing which resembles the heroes of antique Rome with their sword and baldrick, nothing which recalls the virgins of Hellas"; and, as he left Burlington House, the old engraver tells us how, as he deplored "the state of barbarism in which stagnates English art, he felt proud of the supremacy of his academic school over all the academic schools of the world." It is a view the truth of which, however exaggerated it may appear, it is impossible not to a great extent to admit when one compares any *Salon* with any exhibition of the Royal Academy. Academic art has been sadly abused, but it holds its own, and we shall have in this *Salon*, we hope, an opportunity of gauging the strength and force of its existence.

Apropos of the *Salon*, it appears that M. Turquet's changes and proposal to arrange the exhibition into "sympathetic groups" have met with solid and unanimous resistance, and will only in a very small measure be carried out; we are sorry, as some interesting results might have been arrived at.

One professional paragraph may, we hope, atone for the rest of this somewhat unprofessional chronicle, which remains, however, always within the domain of art. Everything should be done to break down the petty, even if serious, barriers that exist between the sister arts. The newspapers have recently spoken with no small enumeration of detail of the wonderful mansion which is being built by the Comte Minszech, next the house which his relative the novelist, Balzac, long occupied, and where he died, situated in a street which now bears his name, at the further end of the Rue du Faubourg St. Honoré, and near the beautiful house which the Dowager Baronne de Rothschild built not long since. The count has spared no pains or expense to render his home a marvel of luxury, and, let it be said, a marvel of mixtures of style, but that is thoroughly "nineteenth century." The first impression on entering is that of being landed suddenly in the house of some Polish palatine of the fifteenth century, a semicircular vestibule apparently situated at the bottom of a donjon keep is lighted in a fantastic manner by stained glass. The walls and the vaulting,—decorated with foliage and ribs grouped in a pendent finial,—are ornamented with scutcheons on which figure the arms of Mdme. de Balzac and her relative. By two twin arcades a landing is reached, on to which open to the right the apartments of the ground-floor, to the left the foot of a spiral staircase which ascends to the upper floors. The balustrade of this staircase is a marvel of design and execution, representing a series of bas-reliefs of knights at full gallop. At the foot, on the last pilaster, a warrior armed *cap-à-pied*, and winged like St. George in the legend, keeps sentinel, lance in hand. By the door on the right the rooms on the ground-floor are entered; these have a very

* The sums accorded to the direction of Fine Arts were, for 1879, 7,579,830 francs (more than 300,000*l.*), nearly 50,000*l.* being spent in the acquisition of works of art at the various Exhibitions; 25,000*l.* to the artistic educational department; to the national museums nearly 32,000*l.*; to the historic monuments some 53,000*l.*; to the conservatoires, subsidised theatres, &c., 44,000*l.*; to the national manufactories, nearly 36,000*l.*

different aspect from those we have just left. First of all opens a picture-gallery, the panelling of which, of the time of Louis Quatorze, is ornamented with China lacquer; the ceiling is painted in fresco, and represents an upper gallery. On one side the picture-gallery is lighted by a large bay opening on to the Rue Balzac; on the opposite side the light enters from a small inner court, softened by the greenery of a Spanish *patio*, which is enchanting. From this room one passes into a rotunda, "style Louis XV.," decorated from top to bottom with authentic wood-carvings, which came from an old château in Brittany. On the upper floor is a vast bed-room in the fifteenth-century style, the effect of which is characteristic, the joists being painted and supported by brackets, representing the masks of warriors' heads. The walls are of a pale tint with no other ornament than a line of light foliage, which forms the cornice. The monumental chimney-piece constitutes the principal decorative motive of the apartment, the wealth of its ornament contrasting with the austerity of the rest of the room; there remains still to be added to it the portrait of Sobieski, the illustrious ancestor of Madame de Balzac. From this room to the contiguous apartment the change is sudden. From the fifteenth century you are suddenly landed, in the wildest extravagance of the East, in a Japanese rotunda, the walls of which glow with all the wealth of coloured flowers which the Japanese know so instinctively how to group and contrast, the ceiling representing the blue sky, with birds. Cleverly-contrived issues put the gorgeous home of the Comte Minszech in communication with the simpler dwelling which the more modest novelist her relative occupied, and which, let us hasten to say, has remained almost untouched.

ARCHITECTURE AND CHEMISTRY.

In the region of art, Genius is discovered in the aspect of an alchemist, who, knowing the nature of his materials, yet so combines them that the result is attained by a process of which he himself is partly unconscious, and the details of which he is unable to communicate to others. In science, genius may find an outlet for its powers, but they are controlled and conditioned in a way of which the artist knows nothing, and which are not necessary to his success. In art, men do not inquire into the nature of the reasoning that must have preceded its triumphs; in science it is essential, not only that these inquiries should be made, but that every step of the ladder should have been examined and found sufficient.

While this holds good in so far that it precludes any reasonable comparing of an art and a science, as in the case of two arts or two sciences, it will be found that in more than one important respect an art and a science may overlap each other in certain essential features that are common to both. There are at least two elements that afford grounds for discussing an art and a science in a reasonable connexion; one is community of material, and the other community of function. The first, the use of similar materials, is recognised in all departments of human labour, both of the head and of the hand, as a bond of almost universal application: it is this that gives cohesion to the trades of the world. It is the application of his skill to the subordination of iron to his purposes that makes a blacksmith, of wood that makes a carpenter, of stone that makes a mason. As these are all susceptible of artistic treatment, the division may include as many arts as trades; but even in the more strictly artistic labours of the sculptor and painter we find that the materials provide the most reliable basis for contrasting them, although the aim in many cases is nearly common to both.

So strong is this generic effect of similarity of materials, that it over-rides all other considerations. The tracery of a window may have a great artistic affinity to that of an iron gate; but no one thinks, upon this account, of confusing the labours of the mason and the blacksmith by supposing them to be identical. On the other hand, things altogether unlike in themselves,—a horseshoe from the hands of the village Vulcan, or a key, beautiful and precious, from the brain of Cellini,—are recognised as having a community of origin and a natural relationship. Their functions have separated them, but the materials from which they are both made still preserve the bond that may have been begun by their having been refined in the same furnace and drawn by the same hammer.

No such community as this exists between architecture and chemistry. At the most the bond is partial, and fails to afford grounds for drawing analogies; but, on its practical side, it is of considerable importance, and it is to this we intend to refer.

There is no element of greater importance in the every-day work of the chemist than fire. Without this he is unable to carry out his most important combinations. If he is left without heat his operations are brought to a standstill. He can no longer convert sulphates into sulphides, and the interests of a hundred dependent branches of industry would hang upon his inability to obtain his supplies of heat. But it is equally certain that he could not conduct his business without the apparatus necessary for consuming his fuel to advantage. It is here that there is a border-land between the science of chemistry and the art, converted for the occasion into the science, of architecture. If the divisions and combinations to which we have already referred as following strictly upon sameness of material are to hold good, and are reasonable, then the same rule should apply in the case before us. If the use of bricks fall universally within the trade of masonry, and all masonry within the province of the architect, then by a syllogism that is strict enough to remind us of our school-days, the architect and the bricks are bound together by an indissoluble bond. This, however, being granted, and it would not be easy to escape from the conclusion, it by no means follows that the department of building upon which chemists are dependent for their supplies of heat must necessarily be of the nature of art, either in its ethical or æsthetical meaning. Architecture is universally recognised as an art, but here we have a clear exception to the rule. No architect who built a chimney, though it were beautiful as the tower of Giotto, but who failed to provide a passage for the smoke, could be said to have been altogether successful. The wayfarer might admire the beauty of his design, but the persons who were blinded by his failure to provide an escape for the products of combustion could not be expected to look upon his work as complete. The case of a graceful but draughtless chimney would be similar to the mistake which would be made by an architect who beautified the façade of a furnace, but neglected to arrange its interior so as to carry out the main object of its construction. In cases of this sort, and others, the architect requires to be a man of science, and to be thoroughly acquainted with the conditions necessary to secure success. Nor is this department of his profession by any means insignificant, even with regard to the outward features of his art. Persons who have seen the finest specimens of blast-furnace construction in our own country and abroad cannot fail to recognise elements of great architectural importance. The strict obedience which is invariably adhered to with regard to the practical object in view in no way interferes, but rather adds to the pleasing effect of the structure. In point of simple grandness of design and massiveness of masonry, many blast-furnaces will remain as monuments of both long after they have ceased to fulfil the functions for which they were intended. It may be said that they belong to the department, strictly speaking, of the engineer; but whether the engineer becomes an architect, or an architect an engineer, matters little. Structures of this description come strictly under the head of architecture, whoever may happen to have built them. On the other hand, the better the science of metallurgy is understood the clearer it becomes that the process of smelting iron and converting it is strictly a chemical process, so that in this great branch of our national industries the labours of the chemist and architect are constantly interdependent. It is not, however, to this that we wish to draw particular attention. If having done so shows the reasonableness of discussing the subject, the object we had in referring to them will have been attained; but it is to a matter in which the community at large have a deeper and more general interest to which we wish most particularly to refer. The question is, can the architect, in his capacity as a man of science, provide the means, through any apparatus strictly connected with his profession, for taking full advantage of the heat to be obtained from the combustion of fuel, and in that way preserve the community from the noxious and offensive products of the process? If we look to past experience, we are forced to the conclusion, not only that hitherto he has failed, but that there is nothing to lead to the belief that he is ever likely to be successful. There is a large class of structures, to which the name of apparatus would be more appropriately applied, not strictly within the province of the architect. Some of these go a considerable way to meet the difficulties to be contended with; but even throwing these into the department of architecture, it will be found that they have altogether failed to remove the evils of smoke to any extent that is at all appreciable,—at least, in a large city which happens to be a great industrial centre. This being so, the question naturally arises if it would not be better to hand the matter over to the chemist, and try to discover a means, with his assistance, of getting rid of the evil complained of. If a painful experience in the past could lead people who have suffered from it to overlook previous notions which have been merely based upon prejudice and tradition, it would surely be found in the inconvenience and dangers both to the health and to the person from which the inhabitants of London suffered during the recent fogs.

We have already spoken of the community of material which, in the case of furnace construction, entitles us to speak of architecture and chemistry as allied to each other, but in this great department of the proper combustion of fuel, the second bond to which we referred is of still greater significance. Similarity of function justifies us still more strongly in speaking of the subject as one that rests between the architect and the chemist, and as the former has failed we are fairly entitled to consult the other. Looking at the causes which have brought about so much misery and inconvenience during the past winter, it will be found that, in a scientific point of view, they must be laid at the door of the architect so long as he undertakes their removal.

The temperature of an ordinary fireplace is altogether insufficient, under conditions of adding fresh fuel and other circumstances inseparable from the system, for bringing about the complete combination of oxygen and carbon which is essential to complete combustion and an absence of smoke. Many persons interested in these matters, both commercially and as consumers, have made and still make the mistake of supposing, that by supplying a sufficient or excessive amount of common air complete combustion must necessarily follow. A high temperature is as necessary to the complete chemical combining of oxygen and carbon as the presence of these gases themselves, and to expect that complete combustion will follow upon the admission of large quantities of air at an insufficient temperature, is to expect what, in the nature of things, can never happen. If, therefore, the architect, from his position as a man of science, is to solve this problem satisfactorily, the element of increased temperature is the only one which is open to him to deal with in order to attain the object in view. To design new sets of apparatus that are to supply greater volumes of air than any that have hitherto been invented or introduced, will not help him forward, unless this essential condition of a higher temperature has been previously complied with. Even in furnaces constructed upon a large scale, in which the addition of fuel does not seriously affect the prevailing temperature of combustion, it is with much difficulty and constant care that a smokeless chimney can be counted on; but in the case of a domestic hearth, in which an increment of fresh fuel bears a considerable proportion to the whole contents of the grate, and in which its action greatly lowers the temperature, it is a most hopeless task to attempt to obtain complete combustion.

Turning now to the chemist, and consulting him as to what his knowledge of the laws of his science suggest as a remedy for the evils referred to, we find, fortunately for the community, though greatly in the face of their prejudices and traditions, that the answer is by no means uncertain or the result beset by doubts. As a matter of fact, the waste that goes on in the domestic consumption of coal is much greater that the residue that is available for giving heat. This waste may be classed under two heads. The first of these is due to the loss of heat by its escape through inefficient appliances to the open air, and for this the constructors of our hearths and stoves are directly respon-

sible. The second arises from the waste of material which occurs partly as waste gas and partly in the form of particles of carbon escaping in the form of visible smoke. With regard to the first of these, the methods for introducing economy are, comparatively speaking, obvious, and in most cases there is no difficulty in obtaining a fairly satisfactory result. It is to the latter that we must look not only for an amount of waste that has hitherto puzzled the most ingenious and ardent economists, but for the source of much of the dirt and insalubrity of our large cities. It is this that blackens our houses and our parks, and converts a winter residence in London into the nature of a physical ordeal. We have already had frequent occasion to refer to this subject, and although the aspect in which we are now looking at it is new, we have introduced it in this way only in order to make our conclusions more obvious. If past experience goes to prove what scientific knowledge of the conditions of the problem confirms, that no apparatus at a low temperature can effect complete combustion of the excessively gaseous fuel which is universally employed in this country in the form of coal, why, then, should we make use of this excessively gaseous material? The millions of cubic feet of unconsumed gas and the tons weight of carbon that escape daily into the overloaded atmosphere of London might just as well be taken out of the coal by those who can profit by it, and who would let none of it escape, as by those who make nothing by the waste and pollute the atmosphere by their inability to use it. We do not suggest that coke should be used as a substitute for coal. Three or four thousand feet extracted from the eight or nine thousand cubic feet which a ton of ordinary coal is capable of yielding, would not make any great effect upon the character of our fuel or in the appearance, dear to every Englishman, which it presents when burning in an open hearth, but it would make a vast alteration in the atmosphere we live in. Even if it only reduced the evils without completely removing them, it would do so to an extent that would effect an improvement in kind as well as degree. The rainfall, which is at present unable to cope with the excess of dirt deposited on our parks and buildings, would probably be found sufficient for the work of nature's scavenger. The saving in money in the labours of the housemaid and the house-painter would be enormous, and instead of being reminded of the presence of a town when we walked beneath the shadows of the trees in summer by the blackness of their trunks and their prematurely-withered leaves, we would have much of the refreshment and enjoyment of the country. It is not the first time we have thrown out this suggestion to our readers.

Let the architect, in his capacity of a man of science, take upon himself the responsibility of providing an apparatus that will give full value in useful heat for the amount of fuel consumed, but do not let him be burdened by materials which contain more gas than he is able to consume. The process necessary for his relief is one of the simplest in the whole range of chemistry, and is already at hand. Not only so, but the chemist, out of the waste gases of the consumer, is able to effect combinations that are a well-known source of commercial remuneration. It is surely better that our garments should bear the colours of aniline dyes, which are one of the products of smoke, than that they should be blackened and our lungs stifled by its presence as a noxious emanation in the air we breathe.

Fall of Platform, Glasgow.—In spite of our warning, accidents are happening. On Tuesday night last a meeting was held in St. Andrew's Hall, a new building capable of accommodating between 5,000 and 6,000 persons. Political feeling runs very high in the city at present, and the hall was densely crowded by adherents of both parties. While the audience was assembling there was a good deal of jostling and rough horseplay. Soon after the commencement of the proceedings, a disturbance, arose at the back of the platform, and a number of the occupants of the side gallery stood up to ascertain the cause. Suddenly, and without warning, the front of the structure gave way, and some 80 or 100 persons were precipitated into the area. The audience were standing on the area floor densely packed together, and it was at first feared that the results must have been disastrous. No person, however, was seriously hurt.

A FRENCH VIEW OF CONTEMPORARY ARCHITECTURE.

THE name of M. Trélat is not unknown to our readers. Quite recently we had occasion to report an interesting speech delivered by him at the annual meeting at the Paris École Spéciale d'Architecture, of which he is not only the founder and director, but also an energetic professor. In an article published in the last number of the *Nouvelle Revue* (March 1) M. Trélat has expressed his views on the contemporary architecture of France, and, let it be said, these views apply in a remarkable manner to the contemporary architecture of our country. Coming as they do from a professional source they merit our attention, and as such we have considered that they may not be uninteresting to our readers. Let us endeavour to summarise the twenty pages devoted to the question by the able Professor. One of the chief features of his article is an earnest appeal for a more genuine public interest in the great and important question of architecture,—an appeal which, though made to the French public, possesses as much meaning with the British public, in which no one can complain that there is evident, especially at the present moment, a want of interest in artistic matters.

In his views, M. Trélat claims, above all, an entire absence of personality. "I desire," he writes, "to speak alone of materials and forms," very wisely remarking that his study would fail to attain the end he has in view had he shown any personal feeling.

M. Trélat commences by remarking how insensibly all the arts have been influenced in France by the new agents introduced into the social system since the Revolution of the end of the last century; at the same time, an adequateness to the wants of the present state of civilisation is equally observable, while a school of criticism has arisen which has to no small extent influenced this progress. Architecture, however, stands alone unaffected in this particular among its sister arts, not from the reason that it has remained insensible to the general movement, but from a cause which will be admitted by all M. Trélat's readers; a cause which exists as much on our side of the Channel as in France,—the indifference and ignorance of the public in matters of architecture. "When a monument is uncovered in some public place, it is spoken about, it is true, but it is not understood. The extent, the wealth, or the beauty of a façade strikes us; they are considerations the appreciation of which feeds our self-love. But the meaning of a monumental execution, the measure of its means, the harmony of its composition, all escape our observation and curiosity. No one attempts to discover them. In a word, architecture moves apart and outside general sentiment. It has no public": a sentiment as true in England as in France, where in both countries a warm interest is felt and fostered by the public in all the various other expressions of art.

A further reason for this indifference, in M. Trélat's opinion, follows as a natural consequence; there exists no school of criticism on architectural works; there is no want in the special journals and professional mediums of solid appreciations on the work of our artists; but it is impossible not to see that the public, which forms the chief critic and chief influential factor in the development of the arts, hears no voice speak to it of its public and private architecture. "No one writes to it in its language on that architecture which takes so conspicuous a place in our great cities. It does not penetrate its meaning. But it meets it at the corner of every street; from time to time it records its impressions, for it is a recognised fact that we build a great deal in the present day, and everybody knows what building is.

The edifices which rise about us minister, it is evident, to all our daily wants, from the most simple to the most complicated; their erection appeals largely to the purses of the public; it is only right, then, that this public should judge these edifices from a utilitarian point of view of outlay and adequate return. But there are other duties equally incumbent on the public at large.

The artistic qualities of our buildings should interest in no less a degree the unprofessional world. M. Trélat supports his view of this indifference of the public in the æsthetic and artistic bearings of architecture by showing how small an interest is shown in the exhibitions of architectural competitions, and that at the yearly *Salon* the section of architecture is deserted. "Whatever be the quality of the works which figure there, whatever be the tendencies manifested, all pass unperceived, and monumental art dies out, progress slumbers without public regret. It is impossible not to notice this, and the fact is a grave one. The rare commentaries published on some of our edifices, and which are generally from the pen of some eminent literary man, only prove that in a society like ours a great art cannot be totally neglected by public opinion without from time to time the world of intelligence protesting by a more or less direct attempt at a revival of interest. But in this there is no evidence of that organised and well-fostered, permanent criticism which sustains and propagates art through the masses. Architecture does not possess it. Criticism and public are both wanting. It lives silently on itself, and by this very feature distinguishes itself from literature, painting, sculpture, and music, incessantly traversed by the currents of public interest and public opinion."

While thus we find so completely and lamentably evident a want of interest on the part of the unprofessional world, the "outsiders," can it be said that inside the charmed circle of the profession there exists that friendliness and union of view, that reciprocal and mutual search towards a common artistic ideal, that would go far to resist the outside indifference? The sad and, let it be said, so openly-shown divergences of views, are only too evident to the most unobservant eye. For a certain number of artists architecture has but one aim,—to introduce on to the face of an edifice an arrangement of reliefs which shall successfully recall the beauty of antique Greece. The building is in their eyes but a background on which the architect works as the painter on his canvas. The doctrine is simple and antique; but in the present day it meets, in the requirements of modern life, difficulties which seriously interfere, but the skilful settlement of which has produced a number of excessively ingenious compromises. Alongside of this group there exist others who, while differing in fact from those above mentioned, carry out the same principles. The ideal, as M. Trélat observes, has changed; but it is always a traditional form which is kept in view and introduced into the design. The first artists were content to envelop their building with a mantle which draped it in the antique, and which marked its distant lineage in the art of the arts. But here it is the architecture of some epoch which shows itself in all its forms and means, and which characterises the whole edifice.

In opposition to these two schools are the artists who subordinate the dress, so to speak, of the work to the requirements of the edifice. With the artist of this school, the objects of the building, its necessities, are the first thought, and these, being fundamental, take the first place in his plan. Thus the divisions and repetitions, the contrasts and reliefs, which enter into his design, must never compete with the requirements of the plan, and, above all, they must never contradict them. The *ultima ratio*, as M. Trélat has it, of this school is the free conception of architectural form, and its equally free appropriation to the exigencies of the utilities of the edifice. In the service of this severe doctrine much talent has been shown, but it is impossible not to feel in their final impression a sentiment of chill. The Bibliothèque Ste. Geneviève, on the Place du Panthéon, the Church of St. Pierre, at Montrouge, and the Crédit Lyonnais, in the Boulevard des Italiens, form striking examples of this school.

From this school have sprung two other groups,—one in which "a suffering imagination," anxious to escape the threatened bareness of the mother school, suggested the forms of ornamentation, but whose followers have fortunately had little influence. The second group shows itself, on the other hand, in a large number of buildings. Its members are to be found everywhere. They hold, as M. Trélat observes, a considerable place in the current applications of architecture. "Instead of concealing the fundamental idea in the doctrine in the imaginations of an unlimited idealism, the members of this group see in its rule only a guide applicable to the arrangement of the features dependent on the construction. The form of the edifice is in this case only the result of the due arrangement of the materials introduced into the work. Once confined within this limited field of action, the imagination of the architect discovers in it a series of little

incidents which take their place on the façade, and ornament it. We see on it the mark or the existence of all the arrangements necessitated within the walls by a learned and carefully-considered construction." But these processes, and the considerations which produced them, do not constitute, properly speaking, a school of art. They, in reality, take its place by the expansion they have undergone and the influence they have exercised, in different degrees, be it understood, on a very large number of contemporary artists. As examples of the productions of this school, several of the great schools of Paris, recently built, are pointed to, particularly that of the Rue du Pont de Lodi, and the College Chaptal, on the Boulevard des Batignolles.

From a very understandable fear of falling into personalities, the writer at this point takes care to avoid all criticism, his object being, as he states, to speak of the different currents in contemporary architecture. The study of the schools, therefore, M. Trélat does not attempt, nor anything but a mere passing reference to the existence of a certain number of architects who have escaped the formulæ of any doctrines. Their works, as the writer observes, are features which it is necessary to understand to be thoroughly acquainted with contemporary architecture.

With these divergences of opinion, it might be expected that there would exist not a little bad feeling between the various groups above enumerated; but not so: socially they are excellent friends, artistically the little personal quarrels and prejudices are repressed; but what is wanting is confidence,—the respective ideas of the schools are as opposed as the poles of the magnet. From this it results, as M. Trélat observes, that considerable labour, varied talent, and a broad love of art, remain virtues without echo. The architectural world appears antipathetic and refractory to all discussion. There exists no learned criticism to enlighten it. Must we be astonished that in this state, continues the writer, the possession or the consciousness of the general principles which ought to unite all artists above individual temperaments is wanting? But such is the singular position of architecture in the midst of the contemporary arts. Its divided and apparently-contradictory efforts prevent the general understanding of its aims and means. Still less has modern French architecture been wanting in representative artists. Gilbert, who resolutely attempted a union between the great plastic art of antiquity and the modern edifice; Duban, whose studies were chiefly directed to a like application of the works of the Greeks and the Renaissance; Duc, more bold in his efforts, who played with traditional styles; Vaudoyer, whose dreams were the subjection of the Byzantine cupola and the suppleness of its lines; Labrouste, the ardent servant of the modern applications of science; Viollet-le-Duc, whose endeavour was to apply the logic of the thirteenth century to our modern edifices,—all these have valiantly and honestly devoted their energies and their study to the subject of contemporary architecture.

We must reserve the completion of M. Trélat's review of the position.

PICTURES IN FLORENCE.

A NEW room has recently been opened in the Gallery of the Uffizzi, in Florence, near that of the Venetian School, and named the Lorenzo Monaco Sala, from a large altar-piece placed there, painted by that master, and restored by the late celebrated restorer, Signor Franchi. The subject of the picture, painted on panel, is the coronation of the Virgin, very beautifully treated; the expression of deep humility in the face of the Virgin is equal to anything in the works of his contemporary, Fra Angelico. The picture formed an altar-piece, originally placed in the grand Convent of the Angeli in Florence, in 1413, and for which position it was executed. It was removed in the sixteenth century to the Abbey of the Camaldoli of Ceretto, between Florence and Siena. The form of the altar-piece is that of the fourteenth century. It is divided into three compartments, with three pinnacles, the whole about 16 ft. high and 12 ft. in width, resting on a pediment. The centre panel contains the picture of the coronation of the Virgin, surrounded with sixteen angels. The side panels contain each ten saints and apostles. On the centre pinnacle the Eternal is depicted surrounded with red seraphs. On the pediment are painted scenes in miniature from the life of St. Bernard, and the adoration of the Magi. Pilasters rest on the pediment, and support the three pinnacles. On the pilasters are figures of six prophets. In front of the coronation are angels swinging censers, very curiously worked. A space has been entirely destroyed between these angels. The picture, on the whole, is in a wonderful state of preservation. Few pictures are known by this painter, and many of Taddeo Gaddi have been confounded with those of this artist. The faces of the figures are remarkably fine, both for finish and expression, but the forms show an unwonted absence of knowledge of anatomy The draperies are carefully and artistically painted on impossible forms. The small groups on the pediment are infinitely superior in drawing and finish. The same subject was painted by him for the Camaldoli Monastery of St. Benedetto, outside the Porta Pintø, which building was destroyed during the siege of Florence in 1529. It is supposed to be now in a private chapel near Certaldo. The finest work by this master is in the chapel of the Bartolini, in the Church of the Holy Trinity in Florence. This master, born towards the end of the fourteenth century, a follower of the Giotto school and an adherent of Taddeo Gaddi and his followers, was also, though much his senior, an assiduous assistant to Fra Angelico; and an imitator, in his smaller pictures, of the latter. Vasari, in his earlier writings, names him as one of the most industrious of his age, and that in his time many books illuminated by him were still to be seen in his monastery of the Angeli and in the hermitage of the Camaldoli. Parts of his works are to be found preserved in the chapel of the late monastery of Monte Oliveto, Florence; in the gallery of the Belle Arti, at Certosa, &c.

In the same *salle* with this remarkable picture have been placed the well-known Virgin and Child, with the framework of angels on gold ground, so incessantly copied, and which once occupied a prominent position in the corridor of the gallery, and some few works of contemporary artists. The monk Lorenzo, or Don Lorenzo, was the master of Francesco, the Florentine. We hail the appearance of these interesting works of art by the old masters, brought to view from their hiding-places, where they have lain since the closing of the monastic establishments, and so that they fall into the hands of judicious cleaners, and not wholesale restorers, we will hope for the sight of many more works hitherto denied us.

THE ART OF DRESS.

THE attention paid by M. Charles Blanc to the question of ladies' attire is well known in Paris, and he made it the subject of some of his recent lectures at the College de France. As a very important branch of the decorative arts, and subordinated to all their laws, it fell thoroughly within the limits of the eminent Academician's course,—a fact which served as the exordium of one of the discourses, and his lecture was almost entirely occupied by a sketch of what may be termed the "geometrical bearings of the question," the explanation and understanding of which are necessary for a methodical examination of the subject of ladies' dress before entering into a discussion of colour. Geometry takes a very important part in the understanding of many subjects with which it seems least connected. Plato, did he not call God himself the eternal geometer? Geometry is apparent in all the external expressions of nature. The optical value of horizontal and vertical lines was the next subject which engaged the lecturer's attention; it is a subject which those who have read M. Charles Blanc's work on the "Art of Dress" will remember is very fully developed. The vertical line possesses a quality to explain which the eminent professor used the expression, "an aspiring character." The lines of the sea, which in calm are horizontal, in the grandeur of storm tend to become vertical. M. Charles Blanc then drew the attention of his hearers to the want of absolute exactness in the eye, a fact which is constantly proved by experience; the eye, however, has its impressions corrected by the mind, and through it it learns to reason for itself. The effect of the repetition (a principle of great importance in the decorative arts) of horizontal and vertical lines tends to very different results. Man is in his normal proportions some five times as high as he is broad; in the animal this order is inversed; with the bird the obliquity of its standing position tends to the horizontal. In architecture the pillar, even in the Romanesque style, is always considerably higher than it is broad; with the architrave it is the opposite. As the lecturer observed, these simple facts possess great meaning, and are of no small degree of consequence. The effect produced by the repetition of horizontal and vertical lines was then shown by the lecturer in two equal circles juxtaposed, one ruled horizontally from side to side, the other vertically from top to bottom; in appearance (for nearly everything depends on appearance in art, as M. Charles Blanc very justly observed) the first circle appears oval in its length, the other oval in its breadth; and at this point the lecturer told his hearers how, when he was young, he had been a pupil of the famous engraver Calamatta (M. Charles Blanc also studied under Mercuri), and by the master he was told that, in engraving, in those parts that he wished should attract attention he must use horizontal lines, the opposite line possessing the charm of retiring; a series of horizontal lines being more apparent to the eye than a like series of vertical lines, as any one may see by juxtaposing two equal squares ruled in this manner. Of these two facts, ladies, as the lecturer gallantly remarked, have an instinctive knowledge: no tall woman wears a dress striped vertically, or short women one striped horizontally; all which facts lead to the conclusion that the use of vertical lines tends to heighten and render apparently narrower; the use of horizontal lines to broaden and render apparently shorter.

The value of division, as a decorative principle, was next entered into. As a rule, division, as in human society, tends to diminish; but in large spaces this is not the case. In a wall, say 100 yards long and some 15 yards high, unbroken by any feature, the introduction of a series of windows and doors, and projections, adds rather than takes off from the sense of size, from the fact that a comparative scale is afforded; in the case of vastness there is, however, apart from its geometric effect, the æsthetic sentiment it produces.

Ampleness formed the next consideration of the lecturer, a principle in dress which, when not exaggerated, produced not alone an optical effect of size on the eye, but on the mind. The magistrate in his long gown, the priest and all the great dignitaries in their ample costumes, produce by this very ampleness an effect which is quite as much moral as it is optical. Fashion has ceased to be as exacting and arbitrary as it was, and we should reject in the present day the absurdities of the last-century costume, when the huge head-dresses had to be made use of to balance the enormity of the "paniers." Here is an instance of exaggerated and unsuccessful ampleness.

AN INTRODUCTION TO THE STUDY OF THE FINE ARTS.

THE higher development of the fine arts depends not only upon the natural aptitude and industry of the artist; but upon certain other concurrent and favourable social and political conditions,—conditions without which a grand national manifestation of painting, sculpture, and architecture, is impossible. I shall, therefore, briefly glance at those conditions before grappling with the æsthetic portion of my subject.

There are writers who hold the discouraging doctrine that the successful prosecution of the study of the fine arts even depends on climate. Their full development is, as I am prepared to admit, dependent on favourable surroundings; but far more on the intellectual and political, than the climatic. How small a factor climate is, in their development, might be shown at some length; but for the present we need do no more than affirm thus much, that the temperate zone is more favourable to the development of art because it is more favourable to the development of civilisation. The fine climates of Egypt, Greece, and Italy, were, for comparatively brief periods, the realms of art, from which, for very far longer periods, art would have been an utter outcast had she not found a dwelling-place in those Netherlands of dykes and cloudy skies. You see that men, notwithstanding the oft-repeated warnings of science, will still leap from the narrowest of premises to the broadest of generalisations. But if climate has

comparatively little to do with the successful pursuit of the fine arts, their full development does to a very great extent depend on the political and intellectual atmospheres. 1. On the social and political stability of the State. 2. On a national unity of thought and purpose. 3. On the education, the culture of a people; and 4. On the right leading of a people in matters of taste.

The successful pursuit of the Fine Arts (1) depends on the social and political stability of a State, because such stable conditions permit their study to be continuous, and their theory and practice to be perfected. It depends (2) on a national unity of thought and purpose, because these conduce to unity of purpose and style, in painting, sculpture, and architecture. It depends (3) on the education,—the culture of a people, because it is the finer organisation and sensibility, developed by culture, which makes men susceptible to the *motives* exhibited in the higher manifestations of the fine arts; every advance of a people towards perfect intellectual development is accompanied by improved taste; and it depends (4) on the right leading of the people in matters of taste, because the masses must necessarily lag behind that higher state of culture in which true taste inheres. The leading in taste should, therefore, devolve upon the few. It is the leaders of the people who should direct the people's taste,—who should open up great opportunities for the employment of artists, and who should teach the public that art becomes monumental; that is to say, an enduring record to future ages of the thoughts and aspirations of a people. The arts of a nation have always been the indices of its intellectual status, of its mental poverty or wealth. All the leather and prunella of temporary art fashions, which may for a time receive noisy and fleeting admiration, will not impose upon posterity. The leaders of the people should recollect how much depends upon them; that it is the quantity and quality of the demand which are the chief factors in the development of fine art and fine manfactuure. Let the demand be of the highest, and in sufficient quantity, and genius and skill will most assuredly be found to respond to it. The furnishing of houses with the works of the old masters, and all the bric-à-brac of the ages, does in nowise materially promote contemporary art and manufacture. This was not the way in which the great art epochs were brought about; they were produced by the encouragement of contemporary artists and artisans. The foregoing important and necessary conditions for the higher development of the fine arts ought never to be lost sight of, even during the smooth, unruffled, tenour of their secure pursuit.

It is customary for a writer who treats of the Fine Arts to enter at some considerable length, by way of preface, into their history; but the moral of their history is, I regret to say, generally overlooked. He forgets to note that the system of art-encouragement, and of art-education,—the art policy, in short, of the great epochs, was entirely different to that of our own. Our own more modern and ineffectual ways are, therefore, left unchallenged and undisturbed.

We may learn from a careful and right reading of history that in every instance where the fine arts attained a high development, this was due to the employment of artists on great national or monumental works. The State in ancient days, perceiving that the fine arts were amongst the most durable monumental records of the intellectual status of a nation, encouraged them to the top of their bent. Such encouragement diverted them from the uncertain paths of individual whim and caprice into the highway of national purpose, and inspired them with those higher motives which stamped the art records of Greece and of Italy.

There is a parallelism in the art developments of all the great epochs. Each is an extension in time of the progressive development of the artist. Nay! we may even extend this theory somewhat, in order to meet the variety of characteristic developments as exhibited by the different schools, and say that the progressive development of each school is but an extension in time of the progressive development of its representative artist.

Art in Greece attained to its highest development in the age of Phidias, an artist whose genius was so vast, and his fame so acknowledged, that the works executed under Pericles's rule were all carried on under his direction, and the entire host of artists of every kind, assembled at Athens, were occupied in carrying out this great sculptor's ideas. This high state of art-development, however, was not attained to all at once, for in art progress, as in all other natural and progressive sequence, great ends are not accomplished at a leap, but by slowly progressive steps. We find, therefore, that the art of this period was ushered in by Calamis and Pythagoras, two excellent artists; the former, indeed, was not entirely free from the hardness of the old style, but, nevertheless, he executed admirable works of the most various kinds. The influence of the Phidian school in enlivening, and rescuing sculpture from its antique stiffness was also shown in other districts of Greece than Athens. The plastic adornments of the temple of Zeus at Olympia, executed by Alcamenes, and Pæonius, of Mende, have entirely disappeared; but the remains of the metopes on the pronaos and episthodomos, representing the labours of Hercules, manifest a fresh truthfulness and naïve grace which have no longer anything of the fetters of the old style, but still remain far short of the grandeur of the Phidian ideal. The reliefs of Phigalia give, in individual groups, distinct indications of Athenian models; on the other hand, we perceive in them a less purified sense of form, a love of exaggerated, violent gestures, and almost strained postures, a throwing of the drapery into folds singularly tight, as if curled by the wind, and, in the conception of the subject itself, a harsher character than can be ascribed to the Phidian school. In Sicily, indeed, we find the old style preserved in all its severity, even at this period, for architectonic ends, in the giants of the Agrigentine temple of Jupiter; but the fragments from the tympana of this sanctuary, as well as the metopes found in the southernmost temple of the lower city of Selinus, show that here also, in the decades immediately subsequent to the activity of the Phidian school, a freer and a livelier treatment had found its way from Athens.

Were we to substitute, in this brief review of the evolution of Grecian art, the name of Raffaelle for that of Phidias, and the names of the earlier Italian artists for those of the earlier Grecian, the historical parallel would be complete, and we should perceive that the art of both the Grecian and Italian epochs was slowly and progressively developed.

It is too much the fashion with writers to ascribe the derivation of every nation's art to a foreign source, to trace the origin of all art to the East. They would seem to forget that the human mind is in all ages of essentially the same constitution, and that it passes through precisely similar stages of development from barbarism to the top of civilisation, whenever and wherever this evolution shall occur. There will necessarily, therefore, be a parallelism in the development of the literature and art of different nations. The human mind is the veritable intellectual East, the "morning land," to which the teeming resemblances between the Egyptian, the Grecian, the Mediæval, and modern civilisations may be traced, without straining facts to support a theory of Asiatic origin.

That the characteristics of the taste and of the art performance of a country depend upon the degree of culture to which the community and the artist have attained there can be but little doubt. We may observe a progressive development, an advance in technical skill and in the form of conception in the works of the great artists, from their youth to their maturity, and we may gather from this that what satisfied them at one period of their lives was very different to that which contented them at another. The progressive development of the artistic faculty in the artist himself is, in fact, but an epitome of the history and progressive development of the art-faculty of a nation, only that in this latter case the development occupies a longer period of time. The history of a great artist's mind is the history of art. Grecian and Italian art exhibit parallel characteristics of evolution,—the timidity of infancy, the imperfections of youth, and the masterful moderation and stability of maturity. The history of art is in all cases the history of the progressive development of taste.

Whilst pointing this moral of the history of the fine arts, we ought not to forget to notice another very important fact, viz., that art is the attendant upon, and not the cause of, civilisation. We may easily convince ourselves of this by taking a rapid survey of its history and of its remains; for we shall then find that, as culture progressed, art progressed, and passed from its first crude and childish beginnings to meagre, attenuated forms; from these to greater freedom of design and fulness of form; and finally to its perfection under those artists who represented the culminating culture of the epoch. This was the order of the progression both in Greece and in Italy. The best art, in all the great epochs, came last; whereas, if it had been the cause of civilisation, it should have come first. The mental vision of the British public has somehow become inverted on this point, and our *dilettanti* are extremely eloquent on the civilising influences of art; whereas art is the result of civilising influences. They cannot discern that the only true way of promoting art is by cultivating the man. If this principle were properly comprehended and observed, a true taste for the fine-arts would ensue as sequentially as the flower crowns the healthy root and stem.

Art, we have just said, was not the cause, but the effect of civilisation; and it must still continue to be the effect of civilisation if it is to have any vitality, to proceed on sure lines of progression. It is not in the order of things that Nature should reverse her plan, substitute cause for effect and effect for cause. To this too-prevalent misconception regarding the true place of art in the economy of Nature, the placing of the cart before the horse, it is that we may attribute our mistaken and inefficient art policy and the waste of much public money.

The Romans had living Greece before their eyes, with all her wondrous art-treasures in all their glory and intact, and, moreover, they had living Grecian artists to work for them. The Romans had more available means than we for turning effect into cause, but notwithstanding all these advantages for the promotion of art, as our *dilettanti* misconceive them to be, those means were inadequate to make the Roman era a great art era, or anything but an era of coarse and vulgar imitation. Again, turn to very different and comparatively recent times,—to the art of the time of Louis XIV., and we find the social characteristics of the period, in all their frivolity, unmistakably stamped upon it. The art of the period did not give form to the social life, but the social life to the art. The art-treasures of antiquity appealed in vain to the artists of that period, and yet they drew, and modelled, and professed to admire them as we. Look, also, at the art of the Netherlands, with all the natural aptitude of her artists, the lavish encouragement of painting, of sculpture, and of carving, by her merchant princes. Her artists had the entire cycle of Italian art lying fresh and open before them, and yet the art of the Netherlands only exhibited either a robust realism, wonderful technical skill, or an overwhelming exuberance. It was entirely destitute of any impress of the higher order of intellect, of the finer sentiment of taste. There is still another remarkable example and forcible illustration that effect cannot be converted into cause. For three hundred years Italy was one vast museum of the fine arts. Not only her great cities, but her provincial towns, teemed with great examples of fine art. If museums of art, if art treasures, could teach and civilise, she ought to have been taught and civilised, and to have had the most famous school of art of modern times. For more than three centuries, let us recollect, she possessed all these supposed to be civilising and art promoting advantages,—for a period, indeed, longer than it took a living Italy to produce them,—those very treasures which we are told, *ad nauseam*, are so absolutely necessary for the development of civilisation and of art; and with what results? That their presence was powerless either to restore civilisation or art. Italy will doubtless re-assert herself, both amongst the nations and the schools of art, but that will be as the result of new political foundations, and of education, as it was in all time. The fact is the eye is blind till it be couched by the understanding. There are none so blind as the uncultivated; that is an important truth which has still to be recognised. Art falls in vain upon the untrained, callous, optical sense. It may appear very absurd to some of us, that Hindoo servants should hang works of art committed to their charge upside down; yet it is no uncommon thing in this country to hear men discourse upon art, who hang cause and effect upside down, and in the full belief that they are rendering a great service to civilisation and to art by so doing. Some day they will perhaps know better. If we are to have a great art era in this country, it must come in the wake of civilisation, of education, and as the result of an enlightened encouragement of artists by men of the highest culture. There is no other way to

a great art development than this, all other roads are cross and divergent, and all the money lavished upon them is worse than thrown away; it is misapplied. If people were to be taught that a nation's art is a faithful index of its degree of culture, they might possibly the sooner come to inquire whether, even in education, we are yet in the right way?

In the various manifestations of art, individual and national, there is a very curious phenomenon to be noticed,—a phenomenon which may be appropriately styled "arrested development." When we come to carefully examine it, it would appear as if a halt,—a dead stop,—had brought all art progress and evolution to an end. A certain stage of development is never transcended,—a point is reached from which no further advance is ever made. This "arrested art" bears certain unmistakable marks of childishness about it. It occurs in national art manifestations from either some social, political, or religious impediment, and in the works of individuals from inscrutable causes. All art development, indeed, which stops short of the highest aim and purpose of the intellect is "arrested" art. In my opinion, the Hindoo, the Chinese, the Japanese, and the Gothic, are aborted, or "arrested" art developments. When the intellect of a nation ceases to progress, the fine arts either become stationary or utterly die out. Dismissing, then, with these few notes, the historical section of my subject, I shall proceed to consider the questions more immediately appertaining to the theory of art, and of these, that which primarily presents itself to our notice is the very important one,—What is Art? Persons who are, in their own minds, fully assured that they know what art is, would perhaps deem such a question absurd; but judging from the many fruitless attempts which have been made to answer it, it would appear to be a question by no means easily solved.

It will be as well, perhaps, before attempting to define a special phase of art, to fence this round with definition, to consider the word "art" in its widest signification, as it is, in fact, defined in our dictionaries, viz., "the modification of things by human skill to human purposes"; the word "art," therefore, as thus defined, includes every kind of art, both the mechanical and the fine arts; this definition of our dictionaries is, indeed, a sufficient answer to the general question, "What is art?" but it leaves the special and narrow questions, "What is fine art?" and "What is high art?" unanswered.

"Art," then, in the widest acceptation of that term, commences where man commences to dominate nature to his own purposes, to fit nature to his own uses. Good art is, therefore, good in virtue of its being perfectly fitted to subserve an end. Art, in its most general acceptation, ranges from the production of the simplest piece of mechanical work, — to work of the highest intellectual aim,—from the production of the flint implement to that of the finest painting, poem, statue, or drama. There is in art, as in animated nature, a gradually ascending scale of creation. Every work of art, as every creature, is good in its kind, when it is perfectly adapted to its purpose. This admits, in art-performance, of excellence of different kinds and of different degrees. But we may discover a distinct difference between the kind of purpose which is subserved by the art of the flint implement and that of a painting, statue, or poem. In the one case, the purpose is solely that of mechanical fitness, whereas in the other it is a fitness to the conditions of the human nature, to human taste. The difference between these two purposes constitutes the difference which distinguishes mere mechanical art from fine art, though the two kinds may frequently be found in combination; for cultivated men are not satisfied with mechanical fitness alone,—they will have this modified to their refined sensuous natures, and made palatable by fine art. Hence the appropriateness of the term "fine-art manufactures," in which the two purposes of mechanical fitness and fitness to taste are subserved. Furthermore, fine art enters the pale of high art when, over and above its aim to satisfy the cultivated sense, it appeals to the intellect through lofty and ennobling ideas. Every work of either fine or high art may, therefore, be critically examined, and its merits determined by the cultivated intellect, which is judicial and competent to pronounce whether the artist's aim was a right one, and whether the mark of rectitude has been truly hit. This judicial or critical faculty is developed by observation and reason operating in the domain of taste. It is only, therefore, when this critical faculty is fully developed in the artist that we get fine art and high art, or, till it is developed in communities, that fine art and high art are encouraged. And till this state of perfect culture be developed in a nation, the best kinds of art will be *caviare* to the multitude. For fine art and high art, at their best, are commodities which, like all other commodities, will be produced in vain if there be no demand for them; and thus the state of the fine arts has ever been the true index of a nation's degree of culture.

When I speak of the judicial, or critical, faculty, I do not mean the word judicial to be taken in any narrow and merely legal sense, but of a judgment enthroned and controlling our entire nature,—of a judicial faculty presiding over our senses as well as our intellect. We should then have, besides the science of ethics, a science of æsthetics expounding the principles of the fine arts,—the latter enunciating the laws for the guidance of our sensuous nature, of our taste, as the former does those for the conduct of life. In the broadest view of nature the science of æsthetics becomes a branch of the wider ethics; for ethics in their widest acceptation would include the right or moral ruling of all things. The deeper investigation of these subjects convinces us, indeed, that there are laws of the highest order of generality which equally obtain in ethics, æsthetics, education, hygiene, &c.

When it is said that the principles of the fine arts are eternal, it is meant that under similar conditions of human culture the art practised and the art admired will be similar in character,—that under the highest culture the highest kind of art will be desired and practised. The principles of art are eternal in the same sense that the principles of human nature are eternal.

Every stage in the evolution of the intellect, either of an artist or of a nation, has its special art characteristic; for the art of a nation, in the main, conforms itself to the nature of the demand. The stage of mental culture to which a people has attained will, therefore, inevitably be stamped upon its art productions, even to the temporary fashions of taste and intellect. This accounts for the different art characteristics in the different epochs of a nation's progress,—characteristics which in many cases can only be commended under reservation, as sufficiently satisfying the demands of a nation's infancy and youth.

The German, the Dutch, the Venetian, and the Spanish schools were each good in their kind, but were, as compared with the Grecian and Florentine, less general in their treatment and lower in their aims. It is the intellectual impress that a work of art bears which determines its rank. This is an important truth that should never be lost sight of. A work of art may possess various other kinds of merit, but that is the crowning mercy which gives it kingship. Nothing can well be more indicative of the imperfect art-understanding of the time than the lack of power to divide the truth rightly, and consequently the lack of critical capacity to distinguish art from art. It is a common feature, in modern criticism, to find divers kinds of art reviewed as if there were no dividing lines between different aims,—as if, in fact, all art were of one kind and of equal claims to attention and to honour.*

W. Cave Thomas.

SKEGNESS.

ST. CLEMENT'S CHURCH.

This rising watering-place, on the Lincolnshire coast, is at the present time attracting many health-seekers and others requiring sea air and change, and great improvements have been made since the close of last season; many lodging-houses have been erected commanding good sea-views and the opposite coast of Norfolk. The drainage works have been completed. An abundant supply of pure water has been obtained by sinking an artesian well, at some distance from the town, into the green sand formation, and all the works of supply are finished and in active operation. A new church to replace the old one (which is at an inconvenient distance from the sea, and, besides being very dilapidated, is much too small for the present requirements, is now being erected, on a site in the centre of the new town, at the intersection of the two main avenues. The corner-stone of the new building was laid by the Countess of Scarborough, assisted by Lord Lumley, on the 5th of November. The church will, when completed, be a great central feature, having a tower and spire rising to the height of about 130 ft.

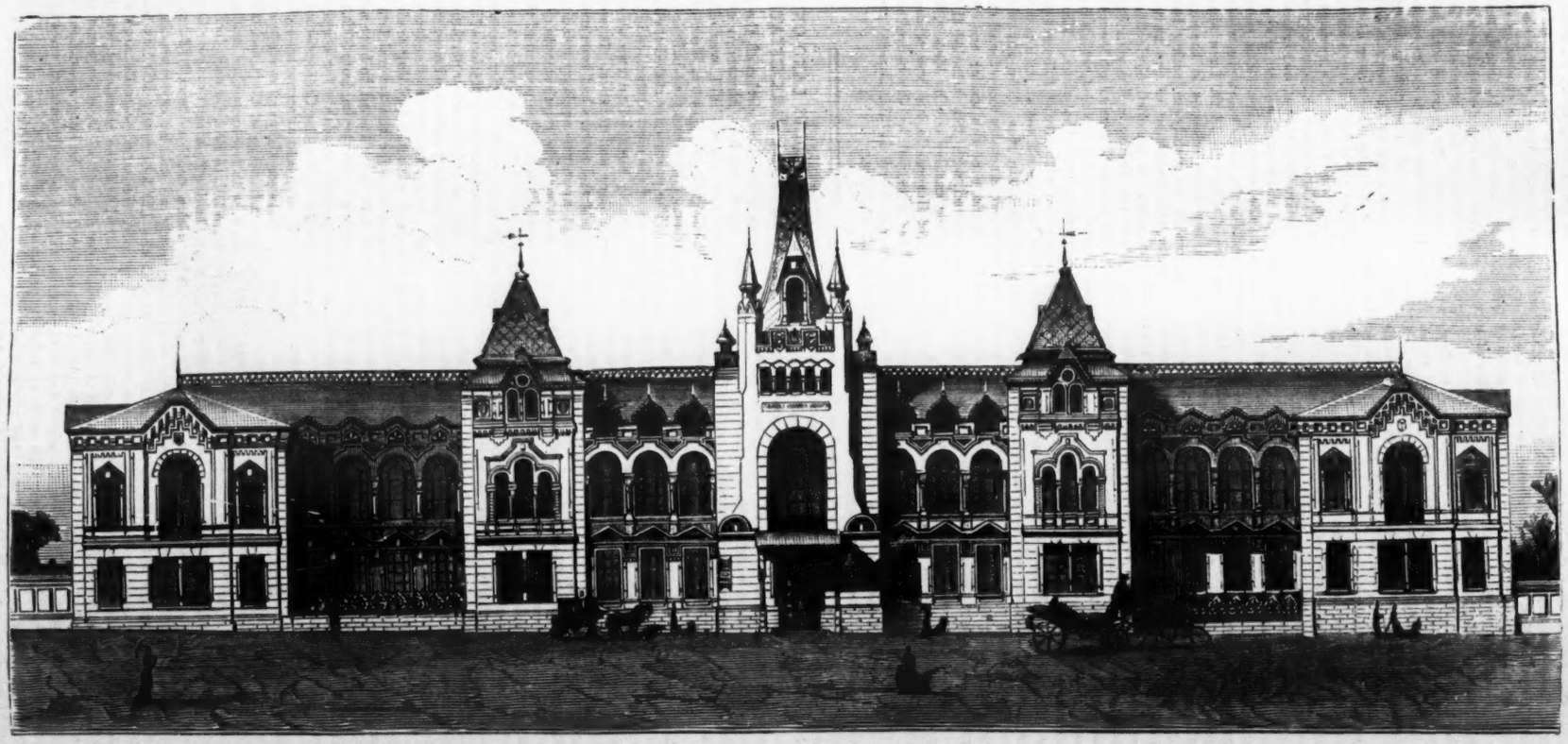
The church consists of a nave, with north and south aisles, 83 ft. long by 52 ft. broad, having five arches opening to the aisles on each side, and in the western bay of each aisle is a large and spacious porch. The chancel is octagonal-ended, 33 ft. long by 22 ft. broad, and on the north side is a large organ-chamber with vestry, gabled and finished as a transept. The tower opens to the nave by a broad and lofty arch, showing the coupled lancets in its western wall. The total length of the church internally is 134 ft., and the ridge of the nave is 50 ft. from the floor. Externally the tower is of three stages, and has three lancet lights on each face of the upper one, from which springs a good broach spire. The ranges of clearstory windows will be effective for lighting, and internally the long sills and the central column give a greater breadth to the composition. The chancel has two set-offs in the walls below the windows, the glass line of which is 14 ft. from the ground. The windows have columns in the angles, and are separated by boldly-projecting buttresses. Internally, the treatment of the nave walls is worthy of note. A panelled circle fits into the spandrels of the arches, and a clustered shaft resting on a corbel is carried up from the hood-mould intersection to the roof, which is of open timber framing, with tie-beams. The chancel roof is panelled with ribs of different sizes, and has a bold cornice all round, with angels at the bottom of the main ribs. The materials used in the work are Ancaster stone for all the dressings and facings of the walls; and the roofs will be covered with flat brindled tiles. The work is being carried out by Messrs. Walter & Hensman, of Horncastle, builders, whose tender, 7,870*l.*, was accepted by the committee. The architect employed is Mr. James Fowler, of Louth, Lincolnshire.

* To be continued.

SALE OF BUILDING LAND ON THE ALEXANDRA PARK ESTATE.

Last week a further portion of the freehold property, known as the Alexandra estate, at Wood-green and Muswell-hill, was offered for sale at the Nightingale Tavern, Wood-green, by Mr. Croucher, of Southampton-buildings, Chancery-lane. The particulars stated that the situation was one of the most attractive in the north of London, being bounded on two sides by the Alexandra Palace and grounds. It was added that the roads and sewers had been constructed on the most approved sanitary principles, and in accordance with the requirements of the Tottenham Local Board. The portion of the estate offered was stated to be opposite the spacious new bridge, in course of erection, connecting the estate with the palace-gates station of the Great Eastern Railway and the other portion of Wood-green. The property submitted consisted of 112 lots. There was a numerous attendance of persons connected with the building trade, and an active competition for the several lots offered. Ten of the lots were stated to have a frontage of 18 ft., with a depth varying from 80 ft. to 100 ft., and to be specially available for shop-property, in consequence of fronting Crescent-road. Most of these lots were sold at an average of 60*l.* for each lot. Between sixty and seventy other lots, having each a frontage of 20 ft. and a depth of 130 ft., were, with few exceptions, sold at prices ranging from 80*l.* to 100*l.* for each lot. Several larger lots, having frontages ranging from 30 ft. to 50 ft., with a depth of from 80 ft. to 140 ft., were nearly all sold at corresponding prices. Out of the 112 lots nearly 100 lots were sold at the sale, the total proceeds amounting to about 8,500*l.*, and the remaining lots have all since been disposed of by private contract. It is expected that building operations on the estate will be actively carried on during the approaching summer.

Trade Marks.—We learn that Messrs. I. C. Johnson & Co., the well-known Portland Cement manufacturers, of Gateshead and London, have just received intelligence that the Superior Criminal Court of Germany has at their instigation condemned a German cement-maker in a heavy fine or imprisonment for having wilfully copied Messrs. Johnson & Co.'s trade mark.



PROPOSED RECORD OFFICE, MOSCOW.—M. ALEXANDER STEPANOVICH KAMINSKY, ARCHITECT.

MODERN RUSSIAN ARCHITECTURE.

THE NEW RECORD OFFICE, MOSCOW.

In the illustration which we present in this issue we have a front view of the buildings which are in course of erection in Moscow for the reception of the records of the Russian Ministry of Justice. M. Dimitry Nikolayevich Nabokoff, at the very commencement of his taking the office, devoted his particular attention to a very important and pressing part of his administration,—to the regular establishment of judicial record offices. One of his first measures in this direction was to obtain a proper and suitable building for receiving the Moscow records of the Ministry of Justice, well known for their extreme richness of material. Those documents are at the present moment preserved in, we might almost say, quite a primitive fashion. With this intention the Minister despatched to Moscow M. Nicolai Vitalyevich Tikhmenoff, councillor of State, a man noted as a specialist in the matter of arranging depositories of records and documents. This gentleman and M. Alexander Stepanovich Kaminsky, the architect, whom he called in to assist him, made the design of the Record Office buildings, of which we are enabled to give a view. The offices, which are in course of erection on a site formerly occupied by the buildings of the Constantine Geodetical Institution, are striking from the style of their architecture, and are described as remarkable for the judicious and convenient arrangement of the interior.

THE BLACKHEATH HIGH SCHOOL FOR GIRLS.

When the Blackheath School for Girls was opened by H.R.H. the Princess Louise in January last we gave some particulars of the building,* and in pursuance of our endeavour to place before our readers the various opinions which prevail in respect of the arrangement of schools, and which will receive greater development in our next issue, we now give a plan of the building and a view of the Hall, repeating, with additions, some of the particulars already printed.

* See p. 53, *ante*.

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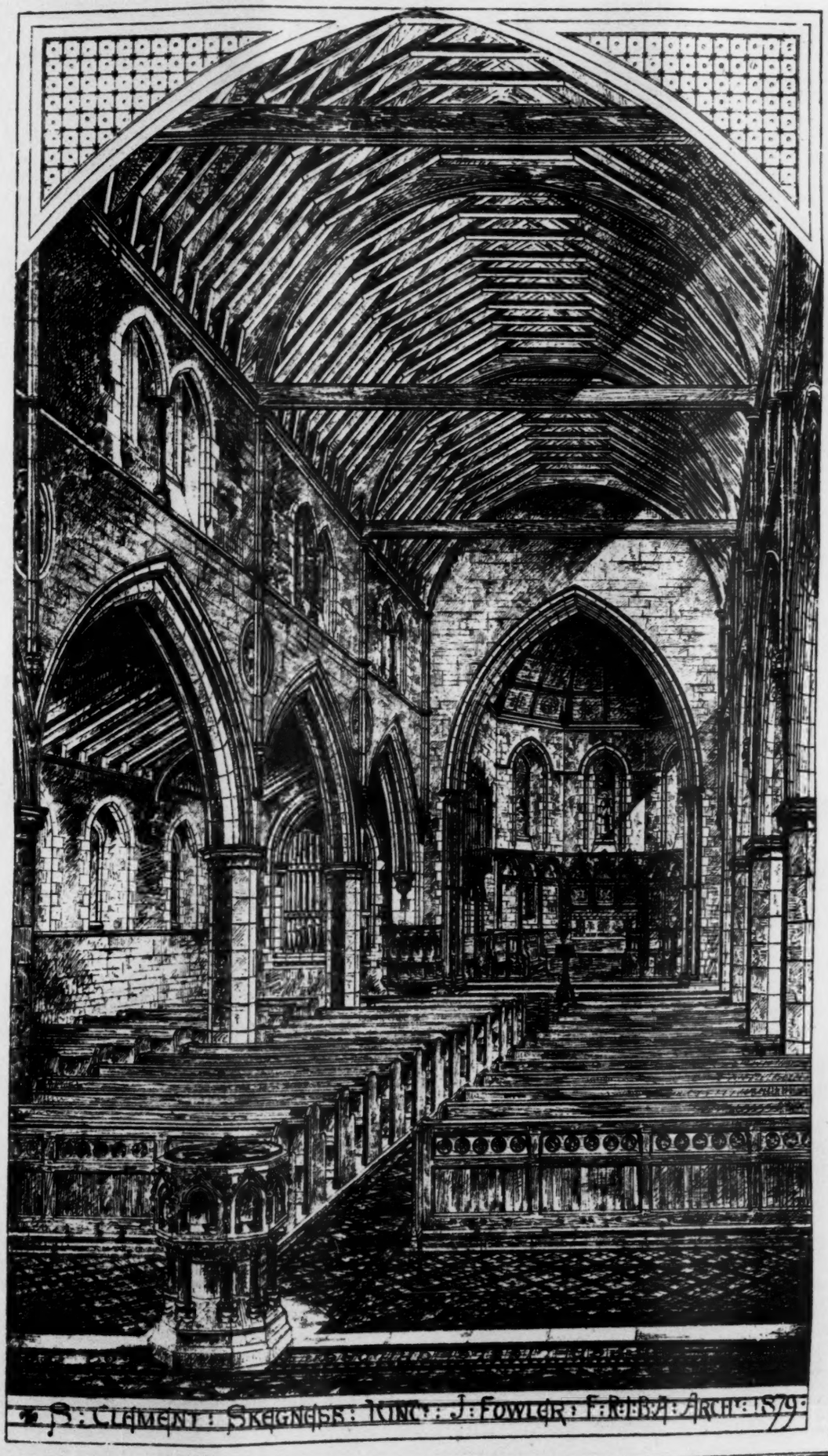
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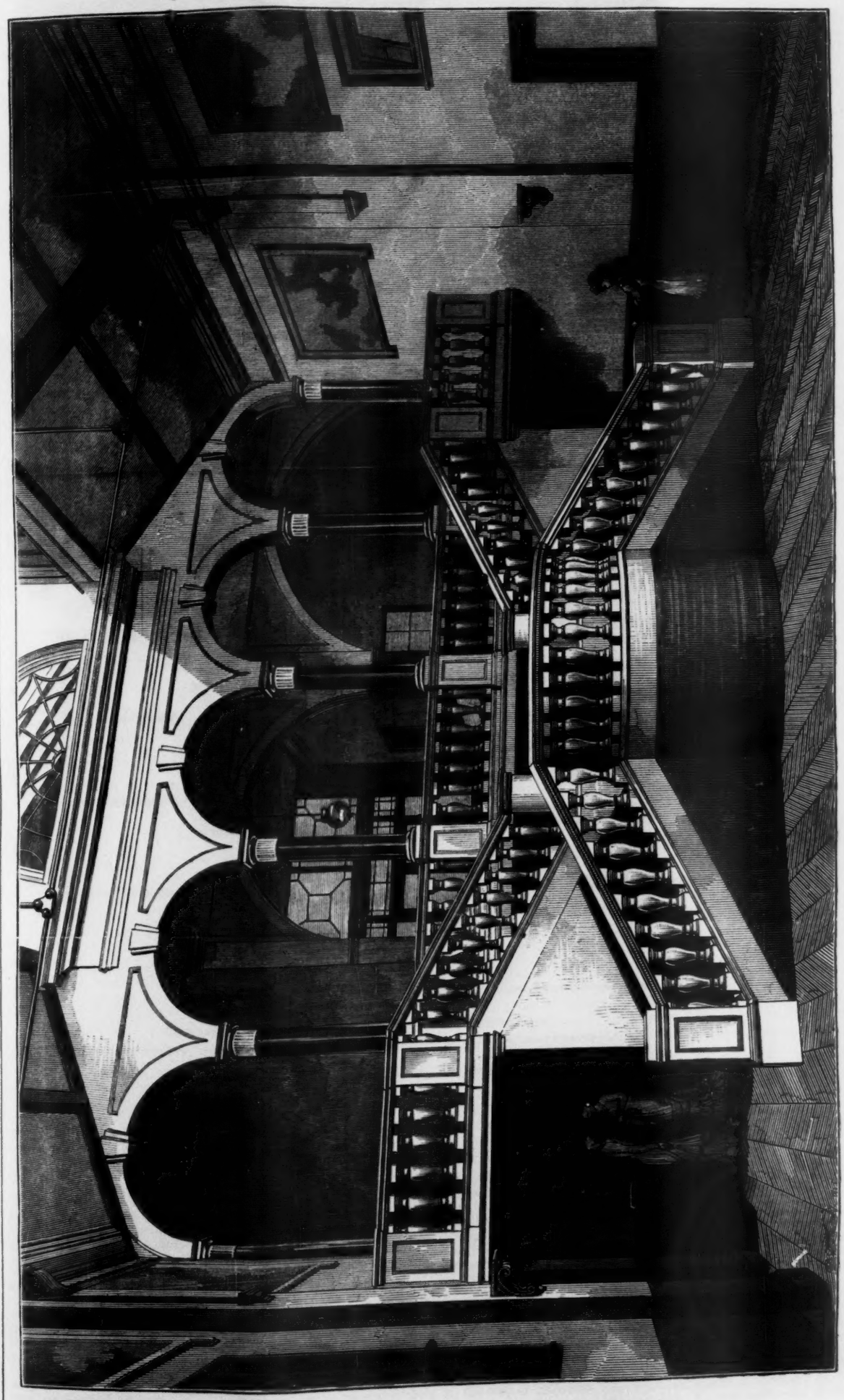
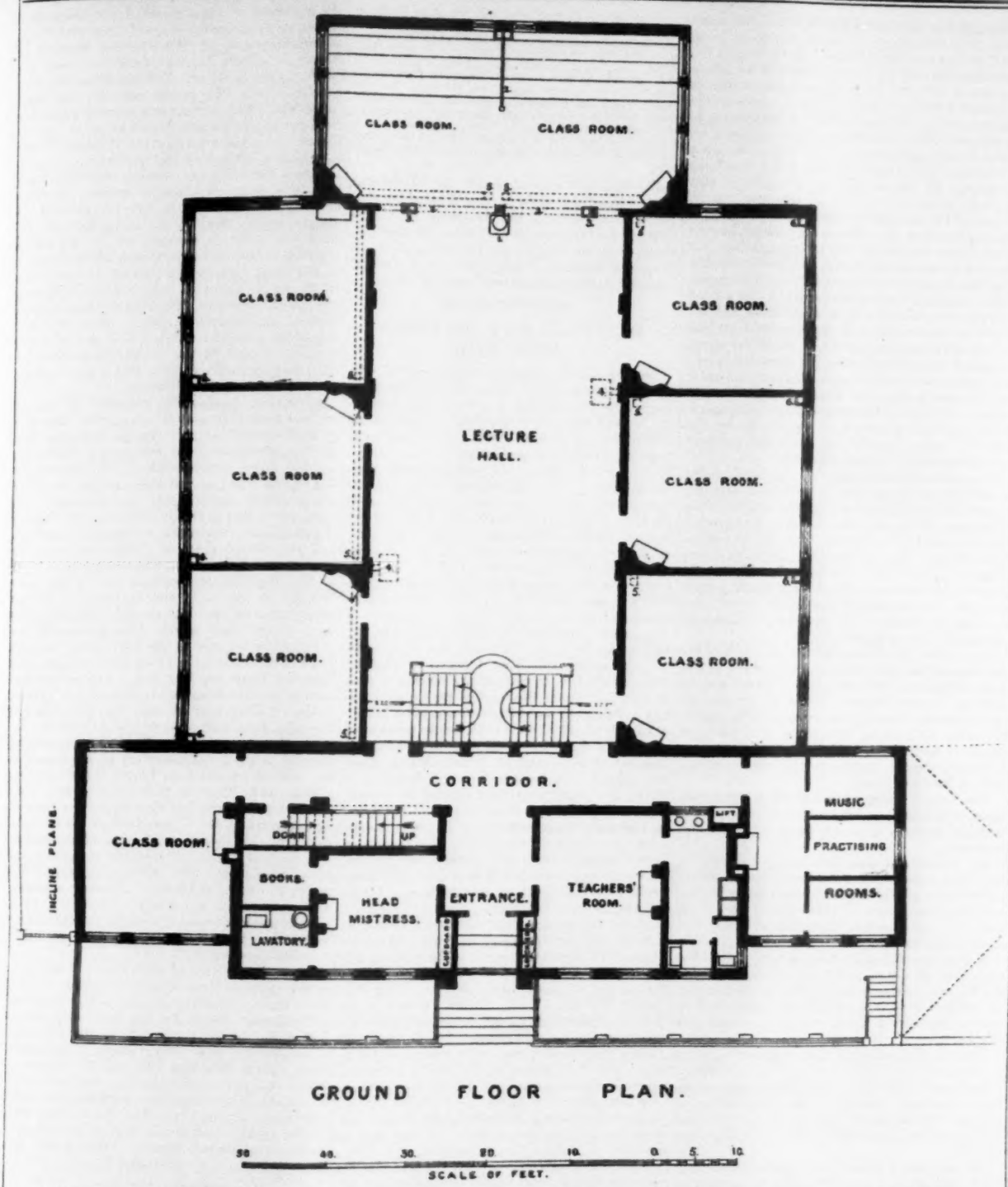


THE BLACKHEATH HIGH SCHOOL FOR GIRLS: VIEW IN THE HALL.—Mr. E. R. Robson, Architect.



1. Statue. 2. Folding shutters. 3. Iron stancheons. 4. Galton stoves. 5. Extraction flues. 6. Tobin tubes.

The plan shows two levels: the front portion the ground floor, and the back part (hall, &c.) the basement level to which the terra-cotta staircase conducts.

THE BLACKHEATH HIGH SCHOOL FOR GIRLS.

The building has been erected for the Girls' Public Day School Company, from the plans and designs of Mr. E. R. Robson, F.S.A., architect, and is specially arranged throughout for a girls' school of the middle class. The chief feature in the arrangement consists of a central lofty hall, measuring 62 ft. by 30 ft. 9 in., around which are grouped eight class-rooms on the same level, lighted from the side, and connected with the hall. These class-rooms measure about 21 ft. by 20 ft. Two of them at the further end are so arranged as to be capable of being thrown into one, and then together thrown into the hall, thereby adding considerably to the accommodation of the latter. This result is obtained by means of an arrangement of revolving partitions, which can be worked by a child. The hall being entirely lighted from the roof, and having its aspects north and south, would be liable to be hot and oppressive in summer were it not that the front portion of the building (which is of several stories) is so arranged as to form a screen from the sun. The level of the site being a few feet below that of the adjoining street, advantage has been taken of this to raise the main floor of the front building, and so to obtain a low story, which is entirely fitted with what may be termed the accessories of the school. For example, as we enter by the side or school entrance, and pass the first swing doors, there is a spacious lavatory, with earthenware tip-up basins, large accommodation in the way of umbrella-stands, and a stove for drying the damp garments of the pupils. As we pass along this basement corridor, which is fitted with seats available for girls changing goloshes, &c., we find on the right numerous spaces available for umbrellas, bonnets, cloaks, and goloshes. On the left, two glass swing-doors enter the hall, and form the working approach to the school. At the further end we find a lift connecting the top stories with the lower, the kitchen, pantry, and complete servants' offices. The corridor itself, however, passes in a straight line out into the eastern play-ground, where is a large, roomy play-shed, fitted with swings, and from which the latrines are approached. In the centre of this play-ground a fine tree has been carefully preserved, and made to form the centre of a circular seat. On the north side of the open

play-ground, which measures half an acre, there are garden-terraces, which, in course of time, will be laid out and planted. Returning to the building, we find the principal floor of the main structure occupied by a wide central entrance, connected with the hall itself by a loggia of five arches, and a staircase entirely of terra-cotta, to which we will refer hereafter. From this point we note, at the opposite end of the hall, a cast, on a pedestal, of the Venus of Milo, which has been presented by the architect. The rest of this floor is occupied by the head teachers' rooms, those for the assistant-mistresses, music-practice rooms, drawing, &c. On the floor above are two class-rooms similar in size to those below, but lighted somewhat differently, and made to throw together by a glass sliding-partition. The rooms for the caretaker and servants are on the second story. Every class-room is fitted with Tobin's pipes, so constructed that there must always be an imperceptible change of air. Every lavatory, sink, and rain-water down-pipe, discharges into the outer air, over an open grating and trap, thus disconnecting the whole from the main sewer. All water-closets inside the building are protected from pressure of sewer-gas by the soil-pipe being carried of its full diameter straight upwards through the roof.

The external architecture in the front shows a building of stock bricks with red edgings, depending for effect upon proportion rather than ornament, whilst a public character is imparted by the lofty stone portal, and its carvings, executed by Mr. McCulloch. Although the building is ostensibly only for 300 girls, it will, in reality, be available for a very much larger number. The whole of the works have been executed by Messrs. Wall Brothers, of Kentish-town, at a cost of 5,500*l*.

We return to the staircase, which, besides forming an important ornamental feature in the general design of the central hall, seems also to present a new feature in the adaptation of terra-cotta as a constructive material. The whole, including stair-steps, balustrade, and piers, is made in terra-cotta, in somewhat large pieces or blocks, which fit together with perfect correctness of lines and joints.

The colour being of a light buff or cream colour, produces an admirable effect, and the material appears to be of great strength and hardness.

We understand that this terra-cotta is of a new kind, manufactured for the first time within a few miles of Plymouth at the Tamar Works, and that the owner of these works, Mr. C. E. Appleby, has patented the result of long and costly experiments.

A staircase of this kind is a crucial test of the capability of any material that has to undergo the burning process; and we should recommend an inspection of it by all who are interested in the employment of terra-cotta for architectural purposes.

The use of terra-cotta is now becoming more appreciated, and its advantages in our humid climate are recognised. Until lately one of the chief drawbacks against it has been the fact of its employment as a vehicle for spreading about indifferent designs and as a cheap substitute for stone.

Of late years some of our leading architects have endeavoured not only to remedy this defect, but also to consider terra-cotta as a building material *per se*, and not merely as a substitute for stone or brick, and have in their designs given it the special treatment which it deserves and requires for its proper development as a valuable material for architectural and decorative purposes.

The Girls' Public Day School Company is a private enterprise, and it is gratifying to learn that it is in a flourishing state as regards its funds. Last year, for instance, the company could have declared a dividend of 10 per cent., but at a general meeting of shareholders it was decided to pay only five per cent., and to carry the balance to the reserve account.

According to the regulations of the Council,—

The School system is especially adapted to meet and correct the defects pointed out in the Report of the Schools Inquiry Commission: "Want of thoroughness and foundation, want of system; slovenliness and showy superficiality; inattention to rudiments; undue time given to accomplishments, and these not taught intelligently or in any scientific manner; want of organisation." Serious endeavours are made to train the pupils for the practical business and duties of life. The School course includes religious instruction, reading, writing, arithmetic, mathematics and book-keeping, English grammar, composition and literature, history, geography, French, German, Latin, the elements of physical science, social economy, drawing, class singing and harmony, gymnastic exercises, and needlework; or such of the above or other subjects as the Council, with due regard to particular circumstances, may determine. Pupils are prepared for such university and other examinations as to the Council seem desirable. The amount of the fees will be from time to time determined by the Council; but it is not intended that they shall be more for all the branches of instruction included in the course than 8*l*. 8*s*. per term, the year being divided into three terms of about thirteen weeks each. Extra fees are payable for music and other subjects not included in the ordinary course. There is also a small entrance-fee, and a separate charge for school stationery. With these exceptions no extra fee is chargeable.

We may add that although the Blackheath High School for Girls is the first of its kind specially erected by the company, they have other flourishing schools at Chelsea, Notting-hill, Maida-vale, St. John's-wood, Highbury, Hackney, Clapham, Dulwich, Bath, Nottingham, Oxford, Gateshead, Brighton, Ipswich, and Norwich.

AN EVENING WITH THE BERLIN ARCHITECTS.

In the Wilhelm Strasse, often called the "diplomatic quarter," where Prince Bismarck, Lord Odo Russell, the British Ambassador in Berlin, and many other political and diplomatic notabilities, have fixed their official residence, there exists an edifice which strikes the stranger by its unusual style. It was originally built for a large joint-stock brewery company, and was intended to add one more to the numerous gigantic beer-houses which are found in the German capital. The beer company, however, soon after the general crash in 1873, became bankrupt, and the Association of Berlin Architects took advantage of the favourable terms on which it was offered to purchase the establishment and make it their home. (We gave a view and description of the building in our volume for 1877, pp. 156–58.) This well-known society, which had been founded in 1824 by Herr Knoblauch, consists of engineers as well as architects. From the time of its foundation it had led a sort of nomadic existence, never having been able to raise funds sufficient to purchase a club-house for itself until chance and the depression of trade and of house-property threw the premises in question in their way. It is about five years since they entered on possession, and since that time they have furnished and adorned their new house in a way worthy of their professional reputation. The institution now possesses a first-rate library, and the premises are employed partly as a club, partly for social entertainments of the members and their friends, and partly for the delivery of scientific lectures and professional addresses, as well as to help younger members in their professional studies, for which last purpose the valuable collections of art-models, of engravings, and of books, are of inestimable service. King Frederick William IV. of Prussia, a well-known patron of architectural art, instituted before his death an annual open competition, in which the Berlin Architects' Association was appointed to the office of judge *in perpetuo*, while the prizes came from a sum the king left for the purpose. For the past year prizes were offered for the best competitors in two separate tasks. The first was for architects, and the task was to produce a design for an artists' club. The second, for engineers, was for the best plan for a goods station, with sheds for loading, unloading, &c., for places where the available area is limited. The first prize and Association medal in the architectural contest was taken by Herr Bohnstedt; the first prize with medal in the engineering competition, by Herr Schnpmann; and further prizes in both branches were granted to other young men.

The presentation of the prizes was arranged to take place on the 13th of March, the day which the Association always celebrate as the anniversary of the birth of Schinkel, whom every Prussian regards as the greatest architectural genius of the present generation. A gentleman who was present at this festival tells us that "Not many establishments in Berlin have such a surprise in store for the stranger as has the *Architektenhaus*, with the exquisite taste of its arrangements, its spacious splendour, and especially its magnificent room under the cupola. As I entered the great assembly-room, which is ornamented with columns and otherwise richly decorated, I found a numerous audience already listening to the annual report, which was read by the president, Herr Baurat Hobrecht. In front of the speaker's chair, and under Schinkel's bust, which was embosomed in flowers and exotic plants, and before which was a figure of Victory crowned with laurel-wreath, I found the members of the Council of the Association sitting round a green table, and along with them, as representative of the Prussian Minister of Works, &c., Herr *Director* Schneider, from the office of that ministry. The report having been concluded, the five young men who had been successful in the contests now entered to receive their rewards. The gentleman representing the Government, and after him the President of the Association, addressed the successful competitors in a few well-chosen words, reminding them that in almost all cases of success there is necessarily a smaller or greater element of chance or luck, but that the energy and genuine work put forth in contests of the nature in question is not labour lost even when the prize is not won. Every instance of conscientious effort and discharge of duty had an improving effect, and, moreover, furnished an inward satisfaction and reward in itself. Such was the spirit, the excellent spirit, which pervaded the words addressed to the successful competitors, who, having received their prizes and medals, now retired from the platform.

After this, the assembly prepared to hear an address from Professor Hauck on the "Relation of Mathematics to Art." Professor Hauck is a mathematician of great eminence in Germany, and the way in which he handled the subject he had chosen was received with much applause by his numerous and distinguished audience. He complained that in the present day the feeling of the intimate connexion of these two opposite and yet related poles of thought appeared to have been entirely lost. The ancient view held in the days of Pythagoras and Plato was founded on the unity and harmony of all the laws and relations determining the visible as well as the ideal world. The heroes of the Renaissance believed in this connexion; but the times of a Leonardo da Vinci, Michelangelo, and Albrecht Dürer are long past. Art and mathematics are travelling on separate, if not hostile, roads. The speaker showed that this was not the case, even with some of the pioneers in the modern exact sciences. Kepler, for instance, was led to his great discovery by his belief in the cosmic harmony as taught by the Pythagorean and Platonic philosophers, and thus attempted to bring the Copernican system into agreement with it. Upon Kepler's law Newton raised up his second law,—that of attraction. The process would, the speaker thought, hereafter be pursued into the region where the realm of art touched that of the exact sciences, and many things which now we judged of by a kind of instinct would ultimately become clearer certainties to us by having their scientific foundation revealed.

After the delivery of the address, of which it is not possible here to give the barest outline, the company, which returned prolonged plaudits to Professor Hauck for the entertainment he had given them, proceeded to the adjoining saloon, which was very tastefully decorated. Here supper was laid out, and the company, which did full justice to the various viands, wines, &c., with which they were supplied, were entertained during the rest of the evening with toasts, music, recitations, and humorous and convivial speeches, many of the guests not departing until a very advanced hour.

THE LAND QUESTION.

Sir,—Is the land of the United Kingdom to go out of cultivation? We hear on all sides of farmers giving up their lands, as being unprofitable, and our provincial newspapers teem with advertisements of farming-stock to be sold and of land to be let. Thousands of acres have not been tilled during the past three or four years, and every year adds to the area fast becoming a wilderness, which, when re-taken in hand, will not be reclaimed for years. Thus the land question, which most of us thought would remain a question for several years to come, has been forced upon the attention of statesmen and politicians of all shades of opinion by a succession of bad harvests during the past four years, culminating last season in what was no harvest at all to speak of, and leading to an importation of food-stuffs during the year 1879 of over a hundred million pounds value, every pennyworth of which, under different conditions, might have been produced on our own soil, but for which now we are obliged to pay either in manufactured or unmanufactured goods or in coin, the latter alternative being on the increase. That this state of things is to be of long continuance is not to be thought of,—I suppose we

shall all be agreed upon that; for no country can claim to be independent which does not itself produce the bulk, at least, of the food of its people. Agriculture is, and must be, the very foundation of any nation's permanent prosperity, which, without it, can only be evanescent, of which axiom history supplies the proofs. Now that our agriculture is at its lowest ebb, it behoves every one of us to do that which in him lies to restore it, not only to its normal state of prosperity, but, by the aid of just laws and applied science, to raise it to such a pitch of excellence as it has never known before, and such as the ability, energy, and determination of the Anglo-Saxon race, of all others, when put in motion, can raise it to. To do this we must first ascertain the causes of the decline, and then we may be able to suggest the remedies. It is a long lane which has no turning, and the darkest part of the night is just before the dawn. We may, therefore, reasonably hope that a return to the normal course of the seasons, with their appropriate weather, will not be long delayed, and that a more regular and constant appearance of sunshine and shower will gladden our hearts and fill our granaries.

We may reasonably inquire whether the manner in which the land is held has not much to do with our distress. By consulting the Domesday Books, we find that the ownership of the soil is in comparatively few hands. 874 persons own one-third of the whole of the land of England and Wales, and 4,500 own more than half. In Scotland matters are worse: seventy persons own half and 1,700 own nine-tenths of the whole of the land of Scotland, where it is calculated not less than two millions of acres have been depopulated to make room for deer.

In Ireland, 292 persons own about one-third, and 744 persons own about one-half, the whole island, and are mostly absentees.

To quote Mr. Froude, a great advocate of things remaining as they are. He says,—"The House of Lords does own more than *a third* of the whole area of Great Britain. *Two-thirds* of it really belongs to great peers and commoners, whose estates are continually devouring the small estates adjoining them."

But the worst part of this condition of things is, that these *two-thirds* of the land of Great Britain are held in such a tight grip by entail and settlement, that never, under any circumstances, do they come into the market for sale. The effects of this system upon the landlords was very graphically described on a recent occasion by Lord Carrington, a peer holding nearly 25,000 acres. He told us that, on his accession to the property, he found it perfectly free and unsettled; that he might have sold or otherwise disposed of any part of it; but that he was persuaded to entail it upon his son and his heirs, with the consequence, which he now bitterly regrets, that he is unable to dispose of any portion of the estates, and that he has, in fact, only a life-interest in them, and his son will have but the same interest, and so on with his heirs.

Then these lands are frequently made the source of dower to widows and other charges, which, in the event of sale when not entailed, so complicates what is called title, that it becomes a matter of the greatest difficulty to make out to whom the property really belongs, or who has the greatest interest in it. This is a matter of the gravest moment. It has been alleged as a reason why so many of our great landed proprietors neglected to register their lands under an Act of the permissive class passed some years ago, that such was the confusion and intricacy of their deeds that it would be impossible to make out a respectable title with ease of many of them; and we know that when Lord Selborne brought in a Bill for a scheme of compulsory registration, the great landholders and their solicitors soon defeated it. The result of all this is, that a degree of carelessness on the part of the landholders is engendered, almost beyond belief. With many of them they care for nothing beyond their own immediate wants and pleasures. The management of the estates is left to the lawyers and stewards, and the principal never interferes. Then, again, some of the wilder sort in their youth set their fathers at nought and, becoming prodigals, mortgage their life-interest in their estates, and live riotously. Such was the case with a baronet of a very honourable name, who, having succeeded to an entailed estate of some 10,000 acres, is obliged to be content with a bailiff being always in possession, and an allowance of 2,000*l.* a year. This man has, I am told, 7,000 acres of farming land vacant at the present moment, and likely to remain so, for he can grant no leases nor make any improvement. This state of things is well nigh intolerable to all parties, and a change will be welcomed by them.

To the tenant farmer in particular, the condition of things is most obnoxious. Without any security whatever for either his capital or labour, the farmer, in most cases, has to go on from year to year without a lease, entirely at the mercy of his landlord, who may evict him at six months' notice, and give him no compensation for unexhausted improvements, which should be his inalienable right; with no power over the ground game, which preys upon his crops, and frequently eats up and destroys the whole; with a law of distress which, a landlord-made law, gives a preferential position to the landlord over all other creditors, and a most summary method of enforcing it; with no local self-government worth the name, and a high rate of local taxation: no wonder the farmers are giving up. For, although it has been proposed to assist the farmers, by some of the more ignorant sort, in the manner of reimposing import duties on the food of the people, yet is there so great a love of free trade, and its good results are so palpable, that the proposition meets with no encouragement in any quarter. Thank God, we have free trade, and that the teeming population of our towns are thus enabled to get a sufficient supply of food from more favoured countries than our own has been lately. I know it has been urged that our farmers can never, in the future, compete with farmers in America who farm their own land, and have no "three profits" to provide out of their crops, but I am desirous of seeing owners of land farming it themselves, and the question is then, how to bring this about? We have had recently no fewer than four Bills introduced into the Parliament of this country by the Lord Chancellor, which have been lately noticed in the *Builder*, but, as far as I can understand them, they appear to go no further than to touch the fringe of the subject. It appears to me that we should give to every present landowner absolute power of disposal of his land by sale or otherwise, and where dower or other settlement is vested in it an equivalent in Consols should be deemed satisfactory, and that under no circumstances whatever should a present owner have power over the land after his death. A more simple method of transfer should also be adopted, and registration offices established in cities, boroughs, and hundreds where the land with its present owner, and all it encumbrances, should be quickly and cheaply registered, and a transfer effected. Under these arrangements, I believe, natural causes would, in a few years, effect a very great change in increasing the number of the owners of land (in these days nothing seems more unnatural than the giving all the real estate to the eldest son),—a change which cannot fail to do infinite good to our people, both morally and physically, and financially too; for, although we are the richest nation under heaven, yet our riches are in too few hands, and some have such an inordinate amount of wealth, that their power for good or evil is enormous, and entails immense responsibility in its use. The changes I have ventured to sketch would, I believe, have the effect, so much desired, of again spreading the people of this nation over the soil of our country, and would, I hope and believe, largely increase their prosperity, comfort, and happiness.

E. GRIMES.

NEW FACTORY FOR THE ATLAS PAPER COMPANY.

CONVERSION OF AN INTENDED THEATRE.

IT will be remembered that a few years ago a well-known City merchant, being at the same time an ardent supporter of the drama, secured a spacious plot of ground in Newington Causeway, extending to a depth of between 200 ft. and 300 ft. in the direction of the London, Chatham, and Dover Railway, on which he commenced the erection of the "Imperial Theatre," with the intention of engaging a dramatic company whose performances were to be under his own immediate direction. For some time the erection of the building proceeded actively, but the substantial main outer walls, upwards of 2 ft. in thickness, having been carried up almost to the eaves, the works, from some cause or other, were unexpectedly stopped, and the undertaking suddenly collapsed. Since that period,—now between five and six years ago,—the unfinished building and site have been advertised for sale, and having at length been purchased, the premises are about to be utilised for carrying on an extensive wholesale business. The purchasers are the Atlas Paper Company, who are large manufacturers of a great variety of articles of which paper forms the material, and the building is now being converted into a huge factory for the purposes of their business. The main walls as erected for the original building remain, and the works now in progress consist of constructing in the spacious interior area, originally intended for the auditorium and stage of the theatre, a number of floors forming the factory. These floors are each nearly 200 ft. in length, extending from about 60 ft. westward of the Newington Causeway frontage to the boundary of the railway. They are carried up on the north and south sides of the interior, supported on massive iron columns, the floors resting on iron girders. There is a wide open space in the centre, the floors on each side forming what may be termed galleries. The central open space will have a glass roof, admitting of ample light to the several floors constituting the factory, which will have a ground area of about 12,000 superficial feet. The sale-rooms and offices in connexion with the factory will be erected on that part of the site immediately facing Newington Causeway, to which they will have a handsome elevation, 40 ft. in width, the materials of the front consisting of Portland stone, polished granite, and terra cotta.

The cost of the factory and buildings in connexion with it is estimated at upwards of 20,000*l.*

The architect is Mr. Chambers, of Queen-street, City, and the contractors are Messrs Greenwood & Sons. The large quantity of iron required for the building, amounting to several hundred tons, is being supplied by Messrs. Measures Brothers.

NEW VAGRANT WARDS FOR SALFORD UNION, MANCHESTER.

THE Guardians of Salford Union are now taking possession of the new Vagrant Wards and Workshops built on a plot of land adjoining the workhouse, fronting Eccles New-road. The front and side elevations of the administrative department are faced with bright red stocks, relieved with ornamental bands and other ornamental brickwork, and the doors, windows, and porches have stone-dressings. The basement is nearly all above the outside ground-line, owing to the rapid fall of the land, and contains heating-cellar, coal-cellar, store-rooms, cooking-kitchen, disinfecting-room, and three workrooms under the cells, each 45 ft. long and 24 ft. wide.

On the ground-floor, in the front part of the building, is the administrative department. There are three entrances, that in the centre being for the attendant in charge of the building; the entrance on the left is for male, that on the right for female, vagrants. The attendant has a private living-room, scullery, two bed-rooms, and other conveniences. The male vagrants enter a spacious corridor, and pass into a waiting-room, 21 ft. long and 14 ft. wide; thence to bath-rooms, which are directly opposite, and of which there are two, each containing two baths, and fitted with wash-basins supplied with hot and cold water. Adjoining the waiting-room, and opposite the bath-rooms, is a large store-room, where rugs and clothing will be kept. On leaving the bath-rooms the vagrants pass into the cells; there are thirty-six for males, which are arranged on each side of a corridor 125 ft. in length. They are built on the separate "cellular" system, as approved by the Local Government Board, these being the fourth wards built on that principle,—a principle we are not prepared to approve. Each cell is fitted with a wood bed, and is well lighted and ventilated; the doors are strong, and secured with a double lock on the outside. Food doors are inserted, and also inspection slides, which enable the attendant to see every portion of the cell without opening the door. To each is fixed a label apparatus, and by turning a handle from the inside a label is thrown out, and the gong placed in the corridor of the administrative department is struck, calling the attention of the attendant and indicating the cell where he is required.

On one side of the building, running the full length, are three rooms, in which mills will be

placed for grinding corn, with connecting rods and handles fixed inside the cells, which the vagrants will have to turn and grind a given quantity of corn before leaving the building.

On the first floor are the women's cells, eighteen in number, seven being double for women with children, approached by a wide flight of stone steps, with waiting, bath, and store rooms, and fitted in every respect like the male wards.

The whole building is heated by hot water, which has been done by Wilson, of Manchester. All the cells throughout are lighted by windows and by gas-brackets made purposely, fixed in the corridor, apertures being left in the walls, covered with fine wire, through which the gas-light is admitted. All the cell-windows have been designed to open and close simultaneously from the corridor by the attendant, and under his control only. All the floors, except on the administrative department, are laid with cement concrete, executed by Mr. Hamor Lockwood, which will effectually keep down vermin, prevent the increase of insects brought in by the vagrants, and tend toward cleanliness. Care has been taken in ventilating the cells and other parts of the building. The locks and label-apparatus have been supplied by Messrs. Charles Smith & Sons, Deretend Bridge Works, Birmingham. Messrs. Armstrong & Dow, of Lower Broughton, are the general contractors; the contract being 4,840*l*. Mr. Henry Pinchbeck, of Manchester, is the architect.

EARLY GRANTS OF LAND.

AT a meeting of the British Archæological Association, on the 17th ult., the first paper was by Mr. Thos. Morgan, F.S.A., and was on "certain grants of land in Mercia, in 770." The lecturer referred to the description, by Mr. De Grey Birch, of a little-known charter belonging to the Dean and Chapter of Worcester, in which reference was made to the granting of land, for three lives, by King Offa. Afterwards the land, which belonged to the church, was to revert to the church. The crippling of the king's resources by so much land being in church patronage was alluded to, and it was supposed that the grant was made by Offa to equalise this, and after the manner of similar acts by Charlemagne. Many curious references were pointed out, allusions to boundaries of estates, the offices of regulus and sub-regulus, and especial reference was given to the little-studied transition of municipal government from Roman times to Saxon.

SALFORD UNION HOSPITAL.

THE foundation-stone of this institution was laid on the 25th of March last, by Mr. Thomas Dickins, J.P., the chairman of the Board, in the presence of the Guardians and others. The preliminary plans of the hospital were approved by the medical and architectural advisers of the Local Government Board without any suggested modification, except as to the number of patients proposed to be accommodated.

In response to their advertisement to builders, the Guardians received more than 100 tenders, fifteen being for the whole of the works, and the remainder for certain sections thereof. The contract was let to Mr. William Southern, of Salford, whose tender (43,480*l*.) was the lowest of those submitted for the complete building contract.

Certain additional items, such as washing machinery, disinfecting apparatus, cooking ranges, grates and chimney-pieces, steam-pipes, steam-engine, shafting, boilers, pump, hydraulic lifts, &c., have to be provided for; but for most of them tenders have been already received, and they will not exceed a gross sum of 9,000*l*.

The site of the building is at Hope, near Eccles, in Lancashire, and is about 310 yards in length, and 85 yards in breadth, bounded on the easterly side, which is to be the principal approach, by an intended street 12 yards in width, and on the southerly side, which is the principal front of the building, by a carriage-drive of the same width. The hospital is designed on the pavilion principle, and a continuous corridor, 850 ft. in length and 10 ft. in width, connects the several pavilion blocks with each other and with the administrative block, which latter is placed in the centre so as to be easy of access from the several departments.

The architect is Mr. Lawrence Booth, Mr. Isaac Graham acting as clerk of works.

Amongst the sub-contractors (under Mr. Southern) for the building contract, there are,—Mr. Wm. Healey, of Salford, for excavating, draining, and brickwork; Mr. James Barrow, of Manchester, for slating; Mr. John Kershaw, of Heywood, for plumbing, glazing, and gasfitting; Messrs. Smith, Exley, & Co., of Bury, for iron-work; Messrs. J. Horsfield & Son, of Manchester, for concreting; Messrs. Deakin & Greenwood, of Lower Broughton, for stonework; and the Knutsford Terra-cotta Company, and Mr. J. Ryder, of Openshaw, for terra-cotta work.

THE GENIUS OF FLAXMAN.

CLASSIC AND CHRISTIAN.

WHILE O'er his page we bend with raptured gaze,
And see revived old Hesiod's *Works and Days*,
And mark anew the Greek and Trojan strife,
Which *Homer* sang of,—pictured to the life,
And catch again the notes by which the Greek
Attuned his art, and made his marble speak,—
In Grecian garb we see the sculptor's muse.

But while we contemplate, a change endues
Her classic form. From either shoulder springs
An angel's plume; and as she sweetly sings
Of Christian Faith, Hope, Love, the sculptor's hand
Fashions each fervent thought.

See *Michael* stand
Transfixing Sin. *The Saviour's Prayer* is heard,
And Sculpture worships at the Sacred Word:
To *Acts of Mercy* now her soul is given,
And Flaxman's muse seraphic points to heaven.

J. B.

(The italics indicate some of the great artist's works.)

ARCHITECTS AND THE GLASGOW MUNICIPAL BUILDINGS COMPETITION.

A SPECIAL general meeting of the Glasgow Institute of Architects, convened to consider the conditions attached to the instructions issued to competing architects for this building, was held on the 26th ult. Mr. Campbell Douglas, the president, occupied the chair, and amongst the gentlemen present were Messrs. James Boucher, Hugh Barclay, H. K. Bromhead, J. L. Cowan, Thomas Halket, jun., William Landless, D. M'Naughten, John M'Leod, H. H. M'Lure, Alexander Petrie, James Ritchie, Alexander Skirving, William Forrest Salmon, T. L. Watson, and others.

Mr. Wm. MacLean (of Messrs. Wm. & C. J. MacLean), the secretary, read the minutes of the Institute on the subject, and also the correspondence which he had had with the Lord Provost regarding the terms of the competition. Thereafter,

The President said that he hoped the public would not judge the profession to which he had the honour to belong as incapable of viewing the state of matters in regard to the proposed municipal buildings as citizens and ratepayers as well as from a purely professional and selfish point of view. As they all knew, the conditions of competition issued by the town clerk were not fitted to ensure the desired end,—viz., to get the best result for the money,—because it was doubtful whether the terms offered would enlist the efforts of the best men in the profession. He was convinced that none of the members who had a fair business and a fair reputation would throw it away and consign it to the limbo of an unrecognised authorship for the chance of the handsome premium with which they had been almost bribed. After alluding to the correspondence on the subject which had appeared in the *Herald*, the President concluded by stating that the Institute had forwarded to the Lord Provost, as convener of the committee, the regulations relating to public competition drawn up by the Royal Institute of British Architects, which communication had been courteously acknowledged, but beyond the knowledge that it had reached the committee the Institute remained in total ignorance.

Mr. Honeyman said that he had, very unwillingly, been forced into a somewhat prominent position in connexion with the occasion of their meeting; because, on the publication of the plans of the proposed building, and the conditions of competition, it appeared to him that immediate action was necessary if there was to be any hope of inducing the authorities to reconsider their programme. It appeared to him that the most likely way to stir up interest was to point out glaring defects in the plans, which the authorities announced were not to be materially altered. In taking this course he hoped no one would imagine that he had the least intention of abusing our respected Master of Works. He wished to repudiate such a charge in the most emphatic manner. When an artist or an architect publishes his work he deliberately invites the fullest criticism, and he would not ask Mr. Carrick, or any brother architect, to accord more licence in this respect than he would most freely accord to them. It was especially right that in anything of great public importance this freedom should be recognised. The grand difficulty which the authorities had drifted into now was this,—that with a plan which was, he might say, admittedly bad, they had decided to spend a large sum of money to get elevations only, and debarred themselves by the terms of the competition from taking anything else into account. Competitors were only asked to furnish small-scale sections, nothing more,—neither plans, nor sections, nor any enlarged drawings,—and the competitors who sent elevations only would be legally entitled to claim the premium. The difficulty would not be overcome by any change in the conditions now, because the authorities had not the least idea how many men might be well advanced with their designs who would never consent to prepare plans also; and their work being thus perhaps utterly thrown away, they would seek redress. There was another serious complication, the premiums offered were ridiculously large, and he was well advised in saying so, because the elevations must be plain. The proposed building,—he spoke under correction,—would cost, with the plainest exterior, 10d. per cubic foot, and the total cost at that rate would reach 157,000*l*.; so that it was manifest that all designs of a costly character must inevitably be thrown aside by the professional assessor. He could not see his way out of the muddle, which was not only ludicrous, but serious. This might be the greatest erection in Glasgow since the cathedral, and there seemed every probability at present that it would turn out a wretched failure, instead of being a thing of beauty, the joy and pride of many generations.

Mr. James Salmon thought that if the views of the Institute upon the subject were respectfully submitted to the Town Council, that body would give all due consideration to their suggestions, and see the advantage of altering the terms of the competition.

After further discussion, it was unanimously agreed to recommend to the Town Council that the last clause of the Instructions to Architects should be altered to read as follows:—"A premium of 750 guineas will be paid to the author of the design which is placed first in merit; a premium of 500 guineas to the author of the design placed second in merit; and a premium of 300 guineas to the author of the design placed third in merit; and on payment of these premiums the respective designs shall become the absolute property of the magistrates and council, who shall employ as architect for the buildings any of the premiated architects, either individually or conjointly."

ENLARGEMENT OF THE EUSTON HOTEL.

THE London and North-Western Railway Company are at present incurring a large outlay in the enlargement of their hotel at Euston-square. The whole of the open space between the present east and west wings of the hotel, on the south side, is being built upon, so as to connect the entire block, and when the works now in progress are completed, the hotel on the north side, facing the entrance to the station, will form three sides of a quadrangle. Preliminary to commencing the erection of the superstructure forming the enlarged portion of the hotel on the south side, a heavy amount of underground work has been carried out in the basement, in which extensive cellarage has been constructed, as well as a wide subterranean passage between the east and west wings, together with a number of offices and other apartments. The enlarged portion of the hotel, forming the south side of the quadrangle, will be erected above a roadway under, through which access to and from the station from Euston-road and Euston-square will be obtained. This roadway will consist of two carriage roads, each 16 ft. in width, together with three foot-paths, 6 ft. in width, one between the two carriageways, and the other two on the east and

west sides respectively. Both the north and south frontages of the roadway will be faced with ornamental fluted piers in Portland stone, with sixteen massive iron fluted columns on each side of the carriageway, and iron cross girders, on which the hotel buildings will rest. The north frontage of the enlarged hotel, overlooking the quadrangle and entrance to the station, will be uniform with the existing hotel buildings on the east and west sides, but carried one story above them. But the principal elevation of the reconstructed hotel will be on the south side, overlooking Euston-grove and Euston-square. This frontage, which will be of a very ornamental character, and entirely in Portland stone, will be upwards of 120 ft. in length. The estimated cost of the works in progress is upwards of 30,000*l.*

Messrs. Kirk & Randall, of Woolwich, are the contractors for the buildings, which are being erected from the designs of the company's architect.

We can scarcely applaud an addition which will thus shut out from view the great Doric Gateway only lately brought into prominence.

THE SANITARY CONDITION OF DEWSBURY: COST OF SEWERAGE WORKS.

A paper on this subject was read by Mr. B. C. Cross, borough engineer, Dewsbury, at a district meeting of the Association of Municipal and Sanitary Engineers, held at Dewsbury on Friday, the 19th ult. Mr. Cross said: In welcoming the members of the Association to Dewsbury, the author wishes to impress upon the members that they have come into a district where natural beauty has been destroyed by the progressive hand of industry. If we look around the suburbs of the town, we see nothing but hill and dale, and we can almost imagine, when standing on one of these hills, that the river twining so gracefully in the valley below is the clear stream it was even some forty years ago. If combined with this we imagine the hills as they were, mostly finely-wooded, we have then brought home to us what a beautiful neighbourhood it must have been before the days of steam. But as we awaken from our imaginings and descend into the valley, we see the once clear stream now like a river of ink, and then we are brought face to face with the awful results of river pollution. By members of the Association especial interest should be taken in the present condition of the river, as, no doubt, it will be the duty, if not of us, of our successors, to transform this river of ink into a comparatively pure stream once more. Only those intimately acquainted with the trade of a town like Dewsbury can fully appreciate the difficulties in the way of doing this, but when we see the river and consider the immense quantities of dyes, chemicals, &c., used annually in the district, then the magnitude of the question becomes apparent.

Being desirous of ascertaining approximately the quantities of chemicals and water used for manufacturing purposes, the author, in 1877, obtained particulars, and estimated that from twenty-five to thirty tons of chemicals are used daily in Dewsbury and neighbourhood; if we add to this about twelve to fifteen millions of gallons of water highly impregnated with spent dyes, &c., and, again, add all the sewage contamination from an area of over 15,000 acres, it will show approximately the amount of pollution in the river Calder within a length of about two miles of its course.

The area of the borough is 1,468 acres. The first Local Board was formed in 1851, and the charter of incorporation was obtained in 1862. The population in 1801 was 4,566. It is now estimated at 32,000.

The chief sanitary evils existing were thus enumerated:—

1. Beck floodings.
2. Back-to-back houses.
3. Common midden system.
4. The bad construction and non-ventilation of existing sewers and drains.
5. Direct communication between houses and drains.

The common midden system is, in the opinion of the author, the greatest sanitary evil we have to contend with. There are about 2,300 privies and 1,500 ashpits in connexion with them. These are, for the most part, not more than four or five yards away from a dwelling-house, and are really open cesspits.

The mortality statistics for the borough for seven years 1873—1879 were thus stated:—

Total deaths per 1,000,	1873	equalled	23·0
,, ,,	1874	,,	32·9
,, ,,	1875	,,	26·6
,, ,,	1876	,,	22·4
,, ,,	1877	,,	21·2
,, ,,	1878	,,	27·4
,, ,,	1879	,,	23·1
Mean for seven years			25·2

In 1876 the author prepared a scheme of sewerage for the borough, which, having been reported on by Mr. J. Bailey-Denton, was, with a few modifications, finally adopted, and the author was instructed by the Council of the borough to prepare the necessary plans, &c. The works comprise:—1. Outfall sewer; 2. Western main sewer; 3. Northern main sewer; 4. Internal sewer; 5. Surface-water drains; 6. Pumping station; 7. Sewage farm.

The amounts of this contract were stated. We quote a portion, as affording general information:—

					Per yard lineal.
285 yards 54-in. brick barrel sewer, 9-in. work, in tunnel...	£1,875	0	11	=	£6 7 2
32 yards do. do. 4½-in. work, in open cutting, average depth, 13 ft.	93	16	7	=	2 19 11
1 manhole, 16 ft. deep	32	1	7		
1 shaft, 76 ft. deep	253	0	6		
Storm-water overflow	167	9	8		
Contingencies	93	0	0		
Total	£2,513	9	3		

The cost per yard lineal, complete, equals 10*l.* 13s.
The gradient of this sewer is 1 in 2,000.

Contract No. 2 includes 1,259 yards of 54-in. barrel sewer, constructed of 4½ in. brickwork, encased in concrete 8 in. thick at the top and bottom, and 10 in. thick at the sides. Before the concrete is put over the brickwork, a collar joint, 1 in. thick, of Portland cement mortar (1 to 1) is made.

					Per yard lineal.
1,259 yards 54-in. barrel sewer, 4½-in work, average depth, 12 ft. 6 in.	£5,008	14	3	=	£3 19 6
11 manholes (24*l.* 0s. 3d. each)	264	3	3		
Contingencies	390	7	0		
Total	£5,659	4	6		

The cost per yard lineal, complete, equals 4*l.* 7s. 11d.
The gradient of this sewer is 1 in 2,000.

The pumping-station will be erected at the north end of the farm.

For the sewage-farm the Corporation have purchased about 155 acres of land, part of which is in the township of Soothill Nether, and part in the township of Ossett. The price paid for 142 acres was about 106*l.* 10s. per acre, the remaining 13 acres costing 135*l.* per acre, the total cost being about 16,755*l.* About 60 acres of this land is tolerably level, and of very fine soil, being mostly alluvial deposit. The remaining portion of the land is hilly, the highest point being nearly 100 ft. above the lowest point. The land is to be laid out on the principle of intermittent downward filtration, combined with surface irrigation. The main drain is composed of 2-ft. fire-clay socket-pipes, laid at a depth of from 5 ft. to 10 ft. below the surface. Near to the main outlet is constructed an inverted syphon underneath the Healey-mill gort, composed of 3-ft. cast-iron pipes, with leaded joints, and covered with Portland cement concrete. Mr. J. Bailey-Denton, C.E., is the engineer for laying out the farm, the author acting as resident engineer. All the works on the farm are being carried out by day-work.

Summary:—

	Length.		Estimated Cost.
Outfall sewer	·91 mile	...	£3,300
Western main sewer	2·39 ,,	...	6,679
Northern main sewer	·63 ,,	...	4,538
Internal sewers	11·61 ,,	...	22,039
Surface water-drains	15·74 ,,	...	8,000
Pumping-station	— ,,	...	8,000
Sewage-farm and preparation...	— ,,	...	22,755
310 manholes	— ,,	...	4,865
131 ventilators	— ,,	...	917
Contingencies	— ,,	...	5,000
Total estimated cost of works			£91,693

The total length of sewers and drains will be 31·38 miles.

Fatal Canoe Accident to a Young Architect.—An inquest has been held at Stonehouse on the body of Mr. Hubert William Thomas, aged 21, articled pupil to Mr. Hodge, jun., architect, Plymouth. The deceased went out for a paddle in his canoe in Firestone Bay on the 20th ult., when, owing to rough weather, his canoe was capsized and he was drowned, in spite of a gallant attempt made to save him by Mr. Edward Hocken, a master-mariner, of Cardiff.

RESULTS OF THE WEST DERBY SEWAGE FARM.

We glean the following from a paper read before the Dewsbury meeting of the Association of Municipal and Sanitary Engineers and Surveyors by Mr. E. H. Allies, C.E. West Derby is a suburban district of Liverpool. The Board having considered the question of disposing of the sewage of the district without causing a nuisance, it was finally determined to dispose of it by irrigation for agricultural purposes. Land at Fazakerly was obtained, which now forms the sewage farm. The area of land purchased was 207 acres, and the sum paid for this was 36,134*l.* 18s. 7d., being equal to 174*l.* 11s. 3d. per statute acre. The amount paid for laying out and developing the farm was 16,948*l.* 18s. 11d., being equal to 81*l.* 17s. 7d. per statute acre; and the total cost of the tanks, engines, pumps, boiler, and engine-house was 6,717*l.* 18s. 3d.; making a total of 59,801*l.* 15s. 9d. The soil which had to be operated upon was not all of the most suitable description for sewage farming, about two-thirds of it being clay, and the remainder a sandy loam. The whole of the land which was to receive sewage was drained to an average depth of 3 ft., the effluent water discharging into the river Alt. The population of West Derby is about 34,000, but the sewage of some 7,000 of this number is discharged into the Liverpool Corporation sewers. The West Derby Local Board have therefore to deal with the sewage of a population of 27,000 persons, whose number is constantly increasing. The principal crops which are grown on this farm are rye grass, mangolds, potatoes, cabbage, clover and rye grass, wheat, oats, and barley, a large breadth being always laid down in rye grass, which is cut from six to seven times in the season. The proximity of a large town like Liverpool offers a good market for all sorts of produce, but crops are frequently sold to customers at a much greater distance. There is no stock kept on the farm other than the horses required to work it. The cartage from the West Derby Farm to market averages about seven miles, and the carts load back with manure. The whole of this cartage and the price of the manure would be saved to the Board were stock kept, as the manure would then be produced on the spot. This farm commenced working in the year 1872-3, but the whole of the sewage of the district was not then brought to it, nor was the whole of the land under crop. It can only be considered as in full working order since the year 1876-7, the financial year ending on the 25th of March. In the year 1876-7, the income exceeded the working expenses by 912*l.* 14s. 11d. In the year 1877-8 the working expenses exceeded the income by 48*l.* 4s. 4d., and in the year 1878-9 the income exceeded the working expenses by 775*l.* 12s. Thus in the last three years the income of this farm has exceeded the working expenses by 1,640*l.* 2s. 7d.; and since the commencement of the farm in 1872, the income account exceeds the expenditure by 230*l.* 4s. 2d. The undertaking was not entered into as a commercial speculation, but solely as a means of getting rid of the sewage of a district, and it must be admitted that the disposal of the sewage at West Derby has so far been a success.

THE MYSTERIES OF COLOUR.

Professor Tyndall, in his evening lecture at the Royal Institution on the 19th ult., already mentioned, commented on Goethe's "Farbenlehre" (or "Theory of Colours"), the examination of which he had undertaken at the desire of Mr. Carlyle, who, in May, 1878, gave him a copy of the work, which he had received from the poet himself in May, 1830. The book has been described by Mr. G. Lewes, and partly translated by Sir C. Eastlake, but has not before been critically examined by any English physicist. It was the result of very much thought and labour, and Goethe considered it his most important work. It deals with physiological or subjective colours (those connected with the eye itself); physical or prismatic colours, depending on the media; and chemical colours or pigments; followed by considerations on the sensuously moral effect of colour; and other topics. The 920 numbered paragraphs describe a great number of facts and experiments, which led Goethe to the conclusion that Newton's theory of colours was totally wrong. He laid very great stress on what he termed "turbid

media," and on the hazy edges, seen when a white card is placed near the surface of a looking-glass, and you look obliquely at the images reflected from the two surfaces, which are more dense and defined where they overlap. By experiments so made, and others with white rectangles placed on black ground, and black rectangles placed on white ground, Goethe constructed a new theory for the production of colours. He said:—"We see on one side light, and on the other side darkness. We bring between both turbidity, and from these opposites develop all colours." Aided by his powerful imagination, said Dr. Tyndall, he forced his "turbid media" into regions to which they did not belong, and thought by their agency to overthrow the irrefragable demonstrations of Newton that white light is composed of a multitude of differently refrangible rays, whose coalescence in certain proportions produces the impression of white; and that by prismatic analysis these rays are separated from each other, the colour of each ray being strictly determined by its refrangibility. Goethe accepted Newton's experiments, but indignantly rejected his conclusions. While maintaining Newton's views, Dr. Tyndall adverted to his opinion that refraction without colour is impossible, which Dollond proved to be erroneous. After showing in strong language how incorrectly Goethe dealt with various optical facts, the Professor demonstrated that Newton's theory was not so much a theory as a direct presentation of facts. At first Goethe restrained himself with due dignity, but latterly he attacked Newton's intellectual and moral character with bitter sarcasm. After some comments on the futile effects of too much invective, Professor Tyndall said Goethe's nature had caused him to undertake a task for which he had neither ordination nor vocation, and in the attempted execution of which his deficiencies became revealed. The discourse was illustrated by numerous brilliant and instructive experiments.

LUMINOUS PAINT.

WE gave a brief notice in our last issue of Professor Heaton's lecture at the Society of Arts, on Balmain's Luminous Paint. The subject is likely to interest so many of our readers that we deem it desirable to add some of the remarks that were made during the discussion which followed the paper.

Mr. Pearsall said that many years ago he worked at the Royal Institution on phosphorescence, and referred to some of the practical applications of the invention, such as for the names of streets, shops, railway stations, &c. The application to life-buoys would be exceedingly useful, and, although the light might be evanescent, yet it appeared sufficiently permanent for such purposes. He saw no reason why the buoys should not carry an electric battery, which might be excited by the water, or, perhaps, also, that the interior of coal mines should be white-washed with this luminous paint.

Mr. Newlands asked if the paint were procurable, and at what price.

Mr. Horne said that the paint could be obtained at their offices in Aldermanbury, and, roughly speaking, cost 28s. per lb. Two years ago, it began at five guineas per lb.; they had now brought it down to 28s., and he believed the more they reduced it in price the larger trade they would do, and the more profit would arise. Being only made from a compound of lime and sulphur, something higher in oxidation than a sulphide, and lower than a sulphate, it should cost, roughly speaking, less than white lead; and when this time arrived, no doubt tunnels and many dark corners might be white-washed with it. Last week an experiment had been made on the Great Western Railway, a coach being run with the ceiling painted with it, although not in the way they had suggested. They brought it forward as a question of economy, to light up tunnels in the daytime; but the railway company tried it in a severe manner, by running a train from Bishop's-road Station underground to Moorgate-street and back. Some members of the press and a representative of the Great Northern Railway were present, and the latter was so pleased with it that the company was going to place a coach at their disposal. Roughly speaking, 1 lb. of paint would cover about 28 square feet.

A member said he understood that this paint would only give off light after it had been already exposed to a strong light; and that, therefore, he did not see its applicability to mines.

Mr. Horne said it was for such purposes they devised what were called the Aladdin Lamps, which were about 1 ft. 3 in. square, and might, in fact, be called portable daylight, as they did not require either gas or pipes. The paint should be allowed to dry two or three days, and was all the better for having two or three coats.

Mr. Harding asked how long exposure to magnesium light or sun-light was required to produce an effect lasting for ten hours.

The Chairman, Professor Roscoe, said they had seen sufficient evidence of what a short exposure to magnesium light would accomplish, which had proved the case so far as the luminosity of the surface was concerned. How long that would last Mr. Heaton would, no doubt, tell them; but the experiment of the Incifer matchbox, which was so very striking, showed how small an amount of light caused the luminosity.

Professor Abel said although he came almost fresh to the practical aspect of the question, he could see many directions in which he should be sanguine of its very useful application. Without going so far as to think that you could dispense with lights in powder magazines altogether, except under certain special conditions, or that you would be able to illuminate coal mines, or that you would deal with light in a very simple manner at great depths under water, still in all these directions these phosphorescent preparations were likely to have very useful results. He felt quite sure that, in the hands of Mr. Heaton and others, its manufacture was likely to become of very considerable use to arts, to manufactures, and to a variety of important purposes directly connected with humanity, and with the daily increasing enlightenment of the age.

Professor Grylls Adams said Professor Heaton had clearly shown what kind of light it was which had this phosphorescent effect, namely, "that at the extreme end of the spectrum," which was taken up by this phosphorescent body, and converted into visible light. He very much admired the results and the rapidity with which they had been produced, and the very slight exposure necessary to give a luminous effect, coupled with the lasting of that effect for a long period.

Mr. Aflano said they had heard about this patent being used for submarine explorations, and for life-buoys, but why should it not be used for the ships themselves? If vessels or their spars and masts were painted with it, it would tend to prevent collisions, and save human life.

Professor Heaton said this had been suggested already, although he had forgotten to mention it.

Mr. Berwick said he had been testing this paint recently in country roads where gas had not yet reached. It certainly did not light you along the road, but it prevented a vehicle running against you, and would be very useful upon direction posts to travellers. In fact, every dark corner where there were railings, or anything on which the paint would dry, might be coated with it. Testing it one day in a dark railway station in Sussex, where there was no gas, he showed that if only the railings were painted with it, it would give sufficient light to run the train in.

BLASTING PROCESSES.

AT the meeting of the Institution of Civil Engineers held on the 23rd of March, the paper read was on "Explosive Agents applied to Industrial Purposes," by Professor Abel, who appears to flourish best in an explosive atmosphere and amidst a shower of projectiles.

After referring to the use early made of gunpowder and wet gun-cotton, an account was given of the rapid progress which had been made in the application of the nitro-glycerine and Kieselguhr mixture, called dynamite, to the exclusion of other plastic nitro-glycerine preparations. The employment of dynamite upon a large scale was illustrated by reference to the stupendous operations connected with the destruction of the reef at Hell-gate, in East River, New York, when a total of 49,915 lb. of dynamite and other nitro-glycerine preparations was exploded in one single operation. The objections to the employment of nitro-glycerine in the pure liquid state were pointed out. Reference was made to the tendency of dynamite to freeze, and the necessity for thawing it before use, as a prolific source of fatal accidents in connexion with mines and quarries, owing chiefly to recklessness of the men, and their disregard of caution and instructions. In the course of the paper, the author referred repeatedly, and in strong terms, to the mischievous and frequently disastrous effects of misleading statements with respect to the safety of particular explosive agents, such as the absence of noxious gases in connexion with their use, &c., which had from time to time been published and circulated in mining districts by the manufacturers and vendors, and which not only engendered false ideas of safety, but also encouraged the natural tendency to disregard precautions.

An account was next given of a new class of nitro-glycerine preparations, devised by Nobel, of which the so-called blasting gelatine was the type, and which presented such decided advantages over dynamite in several directions, that they had already, to an important extent, supplanted it on the Continent, and promised to extend greatly the safe and efficient application of nitro-glycerine. In giving an account of the properties of blasting gelatine, and of certain difficulties which had to be overcome in its application, the author described a series of experiments he had made with the view of increasing the relative power, &c., of the more important explosive agents.

ENGLISH CROMLECHS.

SIR,—In Fergusson's "Rude Stone Monuments," p. 162, it is stated that in Cornwall "There are twice as many as in all England; in Wales, twice as many as in Cornwall; and in Anglesea there are as many as in Cornwall, perhaps more; and in the Isle of Man they are numerous." Some of these are engraved in the Ordnance maps; but only a few of them are complete and merit notice. As to England, irrespective of Cornwall, these cromlechs remain as relics, viz., Kit's Coty House, which I described in the *Builder*, No. 1588, as extant, near Aylesford, in Kent; Drewsteinton Cromlech in Devonshire, which is engraved as a frontispiece to vol. iv. of Britton and Brayley's "Beauties of England and Wales," and which, at p. 231, is described as consisting of three large upright stones, supporting a fourth. Near it, in the River Teign, is a rocking stone, of great size, from 6 ft. to 10 ft. high. In a note it is alleged that cromlechs in general consist of four uprights and an impost. Sometimes they are formed with five and six upright stones. At p. 544 of this vol., the Hellstone at Ridgehill, near Portisham, in Dorsetshire, is described as consisting of nine upright stones, about 3 ft. broad and 6 ft. high above ground, and a horizontal oval stone. The long diameter is 10 ft. 6 in., the short one 6 ft., being about 2 ft. thick at the north and south ends, and 1 ft. 8 in. at the east and west ends. Its original position is north-west to north-east. This relic is on a tumulus. North-west is a terrace or avenue, 60 ft. long, leading to it, 30 ft. broad at one end, and 10 ft. at the other. It has been restored recently. It is engraved in vol. ii. of Hutchins's "Dorset," p. 310, second edition, as it appeared before the restoration, leaning on one stone only, A.D. 1814.

In Higgins's "Celtic Druids," p. 34, the kistvaen in Clatford Bottom, near Marlborough, is engraved, as it appears from the north-west, one stone upon two uprights. Two other stones are on the ground near it, and one of them is in contact with the western pillar. "Such monuments as these generally are characterised as Druidical. According to Pegge and Toland, they are altars or places of devotion. Dr. Borlase and Mr. Watson contend they are sepulchral, and human deposits are found under them. In Scotland and Ireland cromlechs are traditionally said to be memorials of Danish battles."—Britton's "Wiltshire," pp. 717-718.

In Brayley's and Britton's "Herefordshire," King Arthur's tablet is described, near Bradwardine and Dorston, a large and peculiar kind of cromlech, the incumbent stone being nearly 18 ft. in length, and from 7 ft. to 10 ft. broad, its thickness about 2 ft., its form more closely resembling an ellipsis than any other determinate figure. There appear to have been eleven supporters, several of which have fallen. The top stone is broken. Smaller stones are near it, and a mound or embankment of earth and stones. It is engraved as a frontispiece to Duncomb's "Herefordshire," vol. ii.

In Brewer's "Oxfordshire," A.D. 1813, the fallen cromlech at Rollrich, near Chipping Norton, the Five Knights, is described,—a kistvaen, according to Dr. Stukeley. This relic

is engraved in Higgins's "Celtic Druids," two views, as seen from the east and south-west.

The relic known as the Bride Stones, near Biddulph, in Staffordshire, I described in the *Builder*, No. 1,581. It is engraved, inaccurately, in Rowland's "Mona Antiqua." It appeared to me, in 1873, well preserved.

In Warner's "History of Hampshire," vol. v., 4to., without date or index, there are two engravings of the stones, including cromlechs, formerly in the isle of Jersey, and now at Park-place, near Henley-on-Thames, on a hill overlooking the river, it having been given by the inhabitants of Jersey to General Conway. The relic consists of several upright stones in a circle, four flat stones, each on three supporters, and three large stones placed across two side stones, which form an entrance.

In Mudie's "History of the Channel Isles," being vol. iii. of the "History of Hampshire (1839), there is an engraving of the cromlech in Guernsey, near St. Peter's Port, at L'Ancresse, showing three large cross stones resting upon high uprights, p. 26; and p. 84, an engraving of the stone relic near Gorey in Jersey, a large stone recumbent on several high stones, forming a semicircle, with single stones at the entrance. The Guernsey relic is engraved, with a description by Mr. F. C. Lukis, in vol. i. of the "Archæological Journal," pp. 144—151.

These cromlechs of Cornwall are described in Borlase's "Antiquities of Cornwall" (1754), with engravings,—viz., the Logan stone, or Men Ambre, in Sithney parish; the Wring Cheese; the Tolmen, in Constantine; the Lanyon and Zennor cromlechs, with a plan; also small views of Caerwynen, Chun, and Molfra cromlechs, near Penzance.

Molfra cromlech is described by Dr. Borlase as having a cover-stone 9 ft. 8 in. by 14 ft. 3 in.; Lanyon Quoit, as 19 ft. long; Chun cromlech, 12 ft. 6 in. by 11 ft.; and Carwynen, at Pendarves, as being 12 ft. by 11 ft. 6 in. Trevethy stone is described and figured in Norden's "Survey," having a covering-stone 16 ft. long and 10 ft. wide. The Logan, in St. Levan's parish, and Chun cromlech, near St. Just, in Penrith, are engraved in Lyson's "Cornwall," vol. iii., folio. Dr. Borlase's volume contains a view of the Logan at St. Agnes, Scilly.

There are several Cornish cromlechs, not mentioned by Dr. Borlase, in Cornwall. These are the Trevethy stone, near Liskeard, a large block on two supporters, with several high stones near it. It is engraved in "Old England," with Kit's Coty-house; the Constantine Tolmen; and the relic known as Wayland Smith's Cave, near the Ridgeway, three miles south of Shrivenham,—a combination of large stones forming a passage or vault. West Lanyon cromlech was discovered in 1798.

Near Bristol, at Durdham Down, near the road, there are the remains of a cromlech in a field. It is mentioned in *Notes and Queries* for December 14th, 1867. Dr. Stukeley, in his volume descriptive of Abury, referred to several cromlechs at Monkton, &c., which are not extant. One of these, marked in the Ordnance map as extant recently near Marlborough, has been destroyed, and another one near Clatford has been overturned. The other cromlechs which are not mentioned by Dr. Borlase are the Coit, near St. Columb, destroyed in 1871, when I saw the relics,—a large block upon several high uprights; and the fallen cromlech near Helmen Tor, in the parish of Lanlivery. It is engraved in Mr. Blight's "Antient Crosses, &c., of East Cornwall," p. 131. His volume, "Antient Crosses, &c., of West Cornwall," contains, under the title of "Celtic, Druidical, and Roman Remains," view of Lanyon, Caerwynen, Zennor, Molfra, Chun, Coit, and Menambre cromlechs. The Cornubians generally deserve credit for their preservation of ancient remains in their county, although the Constantine Tolmen and the Coit near St. Columb have been destroyed in a wanton, Goth-like manner. The cromlech near Wadebridge, on St. Breock Down, engraved in Warner's "Western Tour," 1807, as a frontispiece, is preserved; and there is a smaller one near the two pillars on the Down. One of the pillars is damaged. These relics are not named by Dr. Borlase in his works.

In *Notes and Queries*, 45, vol. x., p. 225, articles in the "Archæologia," vols. ii., iii., iv., xii., xiv., xvi., xxiii., v., viii., ix., and in the "Archæological Journal," vol. i., pp. 144-151, 222, with reference to cromlechs are mentioned. Mr. J. P. Blight deemed Cornwall to have the best series of illustrative examples of cromlechs in Britain, or of any of which he had read (*Notes and Queries*, Aug. 13, 1870).

A correspondent in *Notes and Queries*, July 18, 1868, suggested that possibly "some original race, Tartar or other, that had drifted and, afterwards established an emigration from America to Europe," may have "raised cromlechs, cairns, &c., in Brittany, Biscay, and Cornwall, &c." This question arises, why were these relics constructed? The reply probably is chiefly, if not entirely, as tombs or memorials of notable warriors, predecessors of mausoleums extant in cathedrals, &c. Human skeletons have been discovered under Cornubian cromlechs, and at L'Ancresse, human skeletons in a crouching position were found. At one time or another I have inspected all the relics before mentioned, except the Hell-stone in Dorsetshire, and the cromlech on Breock Downs, described by Warner. In 1871 I searched for it ineffectually. It is extant, and recently engraved in the Journal of the Institution of Cornwall, with the smaller one which I saw on the down. In Maclean's "History of Blisland," p. 22, 1868, there is a coloured facsimile drawing of Pendree stone, or Logan, being "the stone that moweth." It was on the Beacon Hill or on Puckler's Tor in Blisland (see Norden's MS. "Speculi Britanniæ Pars Harl. MS." 62-52).

In Grose's "Antiquities of England and Wales," vol. ii., the stone block at Chiding Stone, Kent, upon a flat slab, is engraved, 1768; in a farmyard south of the street, 4 m. S.W. of Tunbridge. In Horsfield's "Sussex," i., 264-5, the singular sandstone rock at West Hoathley, with Gen. J. Pownall's description of it, with an engraving in vol. vi. of the "Archæologia," is mentioned. It is a parallelopipedon, 20 ft. high. At p. 166, the Goldstone, in Hove parish, is engraved. It was near a circle of stones, and some years since thrown into a hole near it purposely, A.D. 1834. In Lewis's Top. Dict. it is stated that "a mile from Monmouth, on the road to Staunton, is a rocking stone called the Buckstone, 24 ft. high, 57 ft. in circumference at the upper surface, and 3½ in. at the base. Near it are nine steps, above which is a large stone, having the appearance of a baptismal font, with a cavity for holding water." It is a natural formation, although attributed to the Druids by some authors. In this county, four miles north-west of Caerwent, is, or was, a cromlech, which is engraved in the "Archæologia Cambrensis," 1846, s. 1, p. 1,—one stone on three pillars. I have not seen it.

C. C.

OBITUARY.

Mr. Josiah Wedgwood.—The death is announced of Mr. Josiah Wedgwood, formerly of Etruria, Staffordshire, and for many years actively connected with the pottery trade of Staffordshire. The *Staffordshire Advertiser* says he was born on the 12th of January, 1795, nine days after the death of his grandfather, the founder of the house at Etruria. He was educated at Eton and at Edinburgh University, and after a tour abroad, he joined his father in business at Etruria. Here he studied mainly the practical and scientific side of the potter's work. To this he brought a wide knowledge of authorities, an excellent memory for facts (which gained for him the *sobriquet* of "The Walking Encyclopædia"), and a good judgment in the use and application of the materials. Thus in the practical part of potting he attained great success. Blue printing, which was introduced during his connexion with manufacture, reached in his hands a greater perfection, approaching more nearly the beauty of tint and of softness of Nankin china than it has ever attained since. Many of the results of his trials, however, remained stillborn. The revival of the interest in pottery had not begun in his time, and there was not a demand for any of the less common and more difficult productions of the potter's art. His notebooks, however, remain an interesting record of his energy and of his love for his art. In 1842 he retired from business and from active life, and went to live in Surrey. After some months' illness, he died on the 11th of March, and is buried at the pretty little church of Cold Harbour.

Sections of Iron Joists and Girders.—Messrs. Measures Brothers, of Southwark-street, have issued a new sheet of sections of iron joists and girders, in which several improvements have been made. It includes an immense variety of sections and scantlings, and will be found useful.

PAVING APPORTIONMENTS.

TUNBRIDGE WELLS LOCAL BOARD *v.* ACKROYD.

THIS case (in the Court of Appeal, before Lords Justices Bramwell, Baggallay, and Thesiger), gave rise to the question whether an award in an arbitration under the Public Health Act, 1875, between one of several frontagers called upon to pay the expense of paving the street, and an urban sanitary authority, by which award the arbitrator had altered, not merely the assessment upon the particular frontager, but the assessment in regard to all the frontagers, was binding upon any frontager not a party to the arbitration, so as to entitle the sanitary authority to recover from him the sum which would be due from him on the footing of the altered assessment.

The plaintiffs are an urban sanitary authority under the Public Health Act, 1875; the defendant is the owner of premises abutting on a street not repairable by the inhabitants at large. The plaintiffs served the defendant with a notice under the Public Health Act to pave and repair the street on which his premises abutted. The defendant and other owners failing to execute the repairs, the plaintiffs accordingly carried out the works themselves. An apportionment of the expense of the repairs was made by the surveyor to the Board, the proportion charged on the defendant in respect of his premises being 80*l.* 12*s.* 6*d.* defendant did not dispute the apportionment, but paid the sum demanded to the plaintiffs. Certain other owners having disputed the apportionment, the disputes were referred to arbitration. The arbitrator made a re-apportionment among all the owners, and apportioned 90*l.* 17*s.* 10*d.* as the amount chargeable to the defendant, instead of 80*l.* 12*s.* 6*d.* apportioned by the surveyor. The defendant took no part in the arbitration, and the award was made without his knowledge. A demand was made on the defendant for 10*l.* 5*s.* 4*d.*, the difference between the sum he had paid and the sum apportioned by the arbitrator, and the Judge of the County Court of Kent held that the plaintiffs were entitled to recover from the defendant that amount. On appeal to the Exchequer Division, the learned judges were equally divided in opinion, Baron Huddleston supporting the judgment of the county-court judge, the Lord Chief Baron being of a contrary opinion. The defendant therefore appealed to this Court. The case was argued on the 20th of December, 1879, before Lords Justices Bramwell, Cotton, and Thesiger, when Mr. Cave, Q.C., and Mr. Edward Pollock appeared for the defendant, and Mr. Webster, Q.C., and Mr. Erskine Pollock for the plaintiffs.

Lord Justice Thesiger now delivered the judgment of the Court in favour of the appellant.

Mr. Erskine Pollock, on behalf of the respondents, asked for leave, if necessary, to appeal to the House of Lords.

Lord Justice Bramwell said that, in his opinion, an appeal ought not to be allowed where such a trumpery amount was involved.

The Court refused to grant leave of appeal.

WAKEFIELD URBAN SANITARY AUTHORITY *v.* MANDER.

THIS case (in the Common Pleas Division, before Mr. Justice Grove and Mr. Justice Denman) was an appeal from the decision of the justices at Wakefield, upon a matter which turned upon the construction to be given to the 150th section of the Public Health Act, 1875. The appellant occupied premises on the south side of a street known as St. John's-place, Wakefield, and he had been summoned before the justices for a refusal to pay his proportion of certain expenses which had been incurred in repairing the footway immediately in front of his premises. The 150th section of the Act provides that

"Where any street within any urban district, or the carriage-way, foot-way, or any other part of such street, is not sewered, levelled, paved, metalled, flagged, channelled, and made good, or is not lighted to the satisfaction of the urban authority, such authority may, by notice addressed to the respective owners or occupiers of the premises fronting, adjoining, or abutting on such parts thereof as may require to be sewered, &c., require them to sewer, &c., within a time to be specified; and if the notice is not complied with, the authority may execute the repairs themselves and recover in a summary way the expenses from the owners in default, according to the frontage of their respective premises, and in such proportion as is settled by the surveyor."

In the present case the requirements of the Act as to notice, &c, had been duly complied with, but the appellant resisted the assessment on the ground that it was confined to the south side of the street alone, whereas the words in the section, "fronting, adjoining, or abutting on such parts thereof," clearly contemplated that the expense should be shared by owners of premises on both sides of the street. In the present case the north side of the street, for its full length, was bounded by a churchyard, and by a clause in the Act no expenses could be levied on any minister or incumbent of a church or chapel; but it was contended that this did not exempt the appellants themselves, and, as they had elected of their own accord to execute the repairs in question, they should have de-

frayed that portion of the expenses which fell to the north side themselves. The justices took this view of the Act, and dismissed the complaint, whereupon the appellants now appealed.

Mr. Justice Grove said he was of opinion that the appellants were entitled to the judgment of the Court. This case was by no means free from doubt, but the principle embodied in the 150th section seemed to be "*qui sentit commodum, sentire debet et onus*,"—the person who immediately derived an advantage was to pay for it. If the contention raised for the respondent was correct, he did not see what usefulness could be attributed to the words "adjoining or abutting," and, further, he was of opinion that the words "part of such street" in the section did not mean sections of the street by transverse lines, but parts of the street that were local, or lateral. Then came the words "fronting, adjoining, or abutting on such parts thereof." These words were not mere pleonasms, and yet it would be straining the construction of the section to hold that all three were applicable to the north side of the street. The words "adjoining or abutting" applied only to the south side. Inconveniences had been pointed out in the argument, which, no doubt, must follow whichever way the section was construed, but, upon the whole, he was of opinion that the most reasonable construction was that contended for by the appellants.

Mr. Justice Denman was of the same opinion.

Mr. Graham (for the respondent) asked for leave to appeal, and the Court, agreeing that the case was one of considerable importance and that it could not be regarded as free from doubt, assented to the application.

THE POWERS OF LOCAL BOARDS AS TO SANITARY APPLIANCES IN HOUSES.

REGINA *v.* THE SHERBORNE LOCAL BOARD.

THIS case, heard in the Queen's Bench Division of the High Court of Justice, on the 19th ult., raised a question of some importance as to the powers of local boards. Application was made to remove into the Court proceedings against a gentleman living near Sherborne, on the part of the Local Board, to recover the expenses they had incurred in making effective the water-closets of several houses he had built, without, it was said, proper "flushing" apparatus. The Board directed a surveyor to inspect the closets, and he reported that they were insufficient for want of a proper flushing apparatus. They then directed the owner to execute the necessary work, and, on his not doing so, directed it to be done, and obtained from the magistrates an order upon him to repay the expenses. The magistrates, without entering into evidence on the question of nuisance, made the order, to remove which into this Court, with a view to set it aside, the present application was made.

The grounds upon which the application was urged and supported were that the Local Board had no power to interfere unless there was a nuisance, or something certain to cause a nuisance, on which the justices should hear evidence, and that in such a case as this, a mere supposed defect in construction or defect of supply of water, there was no power to interfere in this manner.

On the other side, it was contended that the Board had to judge as to the tendency of a thing to produce or cause a nuisance, and that here, upon a proper inquiry and inspection by their officer, the surveyor, they had formed a judgment on which they were entitled to act, and that view in the result prevailed; for, after a protracted argument,

The Court held that they could not review the discretion of the Local Board in such a case. It was, they said, entirely, for the Board to exercise their judgment in the particular case upon the report of their surveyor. They therefore dismissed the application and upheld the order. Judgment for the Board; application for a *certiorari* dismissed.

Technological Examinations.—The arrangements for the Technological Examinations of the City and Guilds Institute are now complete, and notice has been issued to all secretaries of science classes throughout Great Britain and Ireland of the system to be adopted. These examinations are worked concurrently with, and on the same system as, those of the Science and Art Department. They will be held on May 12th, on which day, also, part of the Science examination is held. By thus availing itself of the existing organisation of the Government, the City Institute is enabled to hold its examinations all over the kingdom, as there are no places of importance at or near which there is not a centre for the Government system. Further information can be obtained on application at the Halls of the Companies of Mercers, Drapers, and Clothworkers.

HOW WILL OUR WORKMEN BE TAUGHT?

AN EFFORT IN THE COUNTRY.

SIR,—Since you were so good as to insert my first letter on this subject,—signed "Feldspar,"—in your issue of January 31, I have been glad to recognise the prominence given in your columns to the question of the technical education of the artisan. I must thank your two correspondents who wrote as artisans for their courteous letters; and to them, and such readers of your paper, I shall be glad, with your permission, to submit the scheme which we are proposing for our local science school, and shall be grateful for their friendly criticism.

Since my first letter I have had the advantage of a visit to the Artisans' Institute in St. Martin's-lane, to the South London College, and to the office of the Workmen's Club Union in the Strand.

With a view of calling attention to and exciting an interest in our schools, we propose to hold an industrial exhibition in the early autumn, at which prizes will not be offered for fancy productions, such as a patchwork quilt by a mason, or a woolwork sampler by a blacksmith; but only for objects connected with the trade of the exhibitor; as a model of the timber work of a house-roof,—such as I saw at the Artisans' Institute,—by carpenters or carpenters' apprentices, made to scale and framed, as in actual work, and corresponding examples illustrating other trades. We were somewhat at fault in respect of masonry. I gained some help under this head in London, and one of our local promoters suggested competition for a perch of walling, after the manner of a ploughing match. Bear with us, sir, we are in the centre of an agricultural district! Pottery is considerably practised around us, but with this we can readily deal.

At starting with our school we have to attract students to our proposed institution. We hope to do this by attractive lectures in very plain language, such as some which I saw in the programme of the South London College, illustrated where practicable by experiments, as in chemistry, electricity, &c.; also historical readings, with historical ballads and other vocal music. All these, of course, would be open to the general public.

At starting, also, we do not propose very technical classes; but giving to drawing a practical direction, for a class of mechanics.

We do not contemplate being entirely connected with South Kensington. The lowest papers of the Department in science I have found by past experience drove away those who had come to study. We hope to simplify our science greatly; in fact, encourage the taking of notes at the open lectures and readings, which may be amplified in class, and prizes offered for competitive examination in the various subjects.

We do not propose to confine our science school entirely to artisans; but, for the sake of our funds and general support, to have classes for young tradesmen in shops, &c.; and for others who can pay well, and from whom we shall look for help in various ways. We also hope to get together a lending library of standard works, for students chiefly.

We are sanguine that by these means, modified at discretion, we shall succeed. I have some past experience to guide me in country places, though hitherto on a smaller scale, yet in each case with encouraging success; but must admit that in those cases I had a lever which, personally, I now lack, viz., that of a Sunday-school, through which I became intimate with the parents and families of the boys, who, as they advanced in years, recruited our ranks. I am now resident too distant in the country; but by printed slips, announcing the open lectures, and perhaps with a syllabus, circulated through the various Board or Sunday schools o the town, we still hope to get together the right people.

I will not here say a word on the necessity of increased intelligence and education on the part of our workmen. This is now admitted on all sides, and I have sufficiently trespassed on your space. I hope that our scheme of work will commend itself to those of your readers whose friendly criticism I seek, and that you may not think the subject unsuited to your columns.

J. LESLIE M'K.

R. Gay & Co., the proprietors and manufacturers of the well-known "impenetrable" paint have removed to York-road, City-road.

ONE SORT OF SPECULATIVE BUILDER.

SIR,—A stranger walking a few miles around London would see sights that would surprise him. Here, for instance, are carts and wagons laden with building materials, endeavouring to gain access to a field; the wheels are sunk axle deep in the mire, wagoners smacking their whips and beating their horses unmercifully, but all to no purpose; the destined place for unloading is, by mud and mire, rendered inaccessible. Building operations have commenced in this field. As the stranger approaches, he sees a mass of brickwork on each side of an impassable road, that is destined to be called a street at some future day; the walls of the houses, though newly built, look very shaky; that end wall is fairly or unfairly full 6 in. out of upright in 30 ft. A large crack here and there proves that the materials are very slovenly put together. Keep at a distance, stranger, or you may rue the day if you approach too near, for sometimes three or four houses fall together, carrying scaffolding, materials, and men in one confused mass. Some men are extricated wounded, others taken out dead; these mishaps we call accidents. Whether these are avoidable or unavoidable are matters of difference of opinion. If there is any mystery in these buildings that appear so badly built, a few words will explain. This field, which is so rapidly being covered with houses, is the property of one Squire Graball; he is what we term the ground landlord. This field has been long advertised to be let for building purposes; the Squire wants to improve the property. In its original state it was scarcely worth 6*l.* per acre, but the Squire has planned out the ground in building plots to make each acre have forty houses, at 3*l.* ground rent each, so that land of his which was worth only 6*l.* per acre, will, when covered with houses, be worth 120*l.* per acre per annum. But this building land of Squire Graball has no attraction to London builders; it is too far from a finished neighbourhood. People in general like to have houses to live in where the roads are good, the streets well paved, and lighted with gas. When the houses are built on Squire Graball's estate they may remain unsold and unlet for years, but the squire has hit on a plan which he believes will enable him to cover his ground with houses. He has a brickfield to make his own bricks, and sell them to the builders, and now you may read on a board by the roadside, "This Building Land to Let. Bricks supplied and money advanced." This is what you may term building made easy, and now we introduce our speculating builder. It is not requisite that he should understand the art of building. He is a kind of nondescript; he may have been a lawyer, or a mercantile clerk, who has been disgraced; sometimes he turns out to have been a tailor, or a man who has tried many things, but succeeded in nothing. From prudential motives he keeps his antecedents in the background. But the ground landlord and our speculating builder perfectly understand each other. He has taken ground to carry up twenty houses in a very short time. Bricks to be supplied by the ground landlord, and money advanced to pay wages; when the houses are covered in, the leases to be granted. The carcasses are completed, and our speculating builder has not spent one farthing of his own money, for the very obvious reason that he had none to spend. But before the leases are drawn up a slight alteration is to be made in respect of the ground-rent. The original sum was 3*l.* per year, let it be improved to 8*l.* per year; mutually agreed. This improved ground-rent of an extra 5*l.* represents a capital of 100*l.*, which the ground landlord receives as part payment for bricks supplied, the money advanced for wages to be repaid when the first instalment is received from the solicitor by mortgaging the deeds. Squire Graball's solicitors, Messrs. Rackem & Ruinem, are well acquainted with drawing leases and mortgages. Their scale of charges is very moderate. A friend of ours had a lease, and a mortgage on the lease of 200*l.* The low charges were, lease 13*l.*; mortgage, 12*l.*; surveyor's fee, 5*l.*; in all, 30*l.*—only 15*l.* per cent. on the 200*l.* borrowed. According to this scale of charges our speculating builder, who has twenty leases, and twenty mortgages to effect on those leases, will have to pay a considerable sum for law expenses only. In addition to this he has to allow Squire Graball 20*l.* per house, for making roads and sewers, which roads have not yet been made. All these items are taken out of the first instalment of money to be paid on the mortgaged

leases. Mr. Chiselem, the speculating builder, is surprised at those charges: their amount reduced his first instalment of money to a very small amount. But Mr. Chiselem is not at all discouraged; he returns to his duties with redoubled zeal. He immediately takes ground for twenty houses more. The next twenty houses are carried up with equal despatch to the former; the ground-rent improved as before. Mr. Chiselem has become quite a large builder. He has bought a horse and trap, and employs a boy in livery to ride about with him. He has some of his recent leases in his own possession. With these he rides to the bank, sees the manager, and obtaining a temporary loan on those leases, opens a banking account, and gets a cheque-book. Now Mr. Chiselem commences business in earnest; gives orders for all kinds of materials for completing his large estate of houses; he readily gives his acceptances for very large amounts or goods received. Mr. Chiselem is such an agreeable gentleman it is quite a pleasure to deal with him; for small amounts he writes you a cheque that inspires confidence. Mr. Chiselem's career is long or short, depending on his skill in finance; if he can worm himself into the confidence of money-lenders, and obtain large amounts on his acceptances to take up his trade bills, he may continue for some time; if he has no skill in such matters, his career will be short, and the shorter the better for his creditors. If the question be asked, why are ground-rents so high around London, the answer is plain. Mr. Chiselem did it to obtain bricks from the ground landlord, and Mr. Graball consented to it, as it erects a barrier, and prevents Mr. Chiselem's creditors from deriving any benefit from his finished and unfinished property. If to cheat and defraud is a virtue, then Mr. Chiselem and Squire Graball are very excellent men; if cheating and defrauding others is a vice, then Chiselem and Graball are two complete scoundrels. It is quite impossible for Mr. Chiselem to carry out his agreement with Graball, as each house is to be worth 500*l.* when finished,—forty houses 20,000*l.* The houses being so remote from a finished neighbourhood, scarcely one-third of this sum can be obtained on mortgage, and Mr. Chiselem is indulging in expensive habits; so creditors, beware of this kind of speculative builder.

A KENSALLTONIAN.

CASES UNDER BUILDING ACT.

NOTICE, WHERE TWO CONTRACTORS ARE EMPLOYED.

ON Wednesday last, March 31st, Messrs. R. Dennett & Co., 5, Whitehall, were summoned before Mr. Newton, at the Great Marlborough-street Police Court, by Mr. Robert Walker, District Surveyor of St. Martin's-in-the-Fields, for doing certain work at No. 28, Haymarket, and neglecting to give the said Robert Walker notice in writing stating the situation, area, height, and intended use of the building about to be commenced. Mr. Poland, barrister, appeared for the defendants.

Mr. Walker explained that the works referred to in the summons were being executed on the premises of the Co-operative Stores, in violation of the 38th section of the Building Act, and that thereby the defendants, under the 41st section of that Act, were liable to a penalty not exceeding 20*l.* The 38th section provided that the particulars of any proposed works should be notified by the builder to the district-surveyor at least two days before the commencement of such works. The term "builder" was defined as applying to and including a master builder or other person employed to execute, or who actually executed, any work upon any building; so that any person doing work was, for the purposes of the Act, a builder. The intention of the Act, he submitted, was that the man or men who did the work should be responsible to the constituted authorities. There were very important points involved in this matter, because the giving of notice was, under the Act of Parliament, and also under the new by-laws, the preliminary step to all the proceedings which could be taken by the district surveyor. Unless notice was given him at the outset, he had practically no control over what might be done. At the end of the 38th section it was stated that all the works upon any building which were in progress at the same time might be included in one notice; but in this case Messrs. Kirk & Randall, the contractors for the external building, had no control over, and were in no way mixed up with, the work being done by the defendants, so that he could not hold Messrs. Kirk & Randall responsible under the by-laws for that work. Hence it became imperative for him to take this action (the necessity for which he extremely regretted) to compel the defendants to give him notice of their work, or, at all events, to obtain the decision of the magistrate, as there were other proceedings before the Board of Works dependent on that decision. The question at issue was whether separate contractors for works involving the whole weight-carrying power of buildings, and affecting to a great degree the construction of the internal party-walls, were to be at liberty to do all those works without any supervision whatever for the public safety under the Act of Parliament. Personally, he could say that if they were held to be exempt from giving notice it would relieve the district surveyors of a great amount of responsibility, and it would become their duty to inform the Home Secretary that the clause in the Act of Parliament was perfectly useless. He then called,—

Mr. George Haly, secretary to the Co-operative Stores, 28, Haymarket, who said they were carrying out large buildings there. Messrs. Kirk & Randall were the contractors for the general work. Messrs. Dennett & Co. were putting in the fireproof-floors, &c. They were working for the Stores, and not for Messrs. Kirk & Randall. The Stores had a separate contract with Dennett & Co.

By Mr. Poland.—Mr. Verity was the architect of the entire buildings. Messrs. Kirk & Randall were to work conjointly with Messrs. Dennett, so that the two sets of work might fit in together. One of the clauses in the contract was that Kirk & Randall were to give the notices to the district surveyor, and pay all the fees. Witness, by means of plans, explained to the Court that a certain portion of the works originally designed had been completed, the building to which this summons had reference being separate from the others, although adjoining them. The works had been going on since 1877. Messrs. Dennett's fireproof floors had been put in the completed buildings as well as in that now being constructed.

The magistrate asked if Mr. Poland meant to contend that the district surveyor was entitled to have no notice at all?

Mr. Poland said the district surveyor was certainly entitled to a notice from Messrs. Kirk & Randall. He understood that that notice had been given. In answer to the magistrate, the learned counsel said there was a good reason why Messrs. Dennett should object to give separate notices of their work. The district surveyor's fees were something like 25*l.*, and as Messrs. Dennett were constructing a number of these fireproof floors, it was a serious matter to them.

Mr. Walker said Messrs. Kirk & Randall had given him one notice, but it did not cover the works at 28, Haymarket. This was ultimately admitted on both sides.

Mr. Randall was examined, and admitted that his firm had no control over the ironwork, &c., which was fixed into the walls by the defendants. Pressed by Mr. Walker as to whether, in case of accident, he would be responsible for Dennett's work, and as to whether he could supply the particulars of that work should the particulars be called for by the district surveyor, Mr. Poland objected to the questions, and Mr. Newton disallowed them, observing that the only issue he had to try was, whether Mr. Walker was entitled to be served with a separate notice from Messrs. Dennett & Co. or not.

Mr. Poland said that if Mr. Walker wanted any details of the work he could get them from the plans. He would know the general character of the work from the notice given by the first contractor. If separate notices were required as to every part of the work it might involve a great number of notices in regard to the same building.

After considerable argument,

Mr. Newton, addressing Mr. Poland, said,—You admit that Mr. Walker is entitled to have one notice from somebody in connexion with this building. Now the question is, ought he to have two notices,—one from Messrs. Kirk & Randall, and another from Messrs. Dennett. What have you to say to that?

Mr. Poland reminded the magistrate that in a building of this sort, where Messrs. Kirk & Randall entered into the original contract, they were subject to these patent floors being put in by Messrs. Dennett & Co. He would not go into details on this point, but it was obvious that the two contractors must work together. Messrs. Kirk & Randall put in the foundations for the stanchions and the stone templets in the walls for the girders to rest on, and he contended that the general notice given by them to the surveyor was a sufficient compliance with the Act.

Mr. Walker said he admitted that the works might be included in one notice. If Messrs. Kirk & Randall took the responsibility, and made an arrangement with the other contractors, and gave him notice of all the work in one notice, he would only be too pleased to deal with one person instead of two; but where separate works were being done by contractors who had no control over each other, he must have the particulars of the separate works.

Mr. Poland held that it was not necessary to give particulars of the works in the case of new buildings, but only in the case of structural alterations in existing ones. It was enough if notice was given to the district surveyor of the height, depth, width, area, number of stories, and intended use of a building. The surveyor could then go and see for himself how the work was progressing, and judge whether the Building Act was being complied with.

Mr. Newton said it was admitted that the surveyor was entitled to one notice of the works at 28, Haymarket, and that notice, which had not yet been given, must be given by some one. As to the question of a second notice, he saw breakers a-head, and any decision he might give would probably be appealed against, and cost all the parties a lot of money. He wanted to prevent that if possible, and he therefore advised that one notice should be given, and that that one notice should include all the works.

Mr. Poland, after consulting his clients, asked the magistrate if he understood his suggestion to be that Messrs. Kirk & Randall might give a notice to the district surveyor relating to the uncompleted portion of this building, and include in that notice the particulars of the work which was being done by Messrs. Dennett.

Mr. Newton replied that this was so.

Mr. Poland.—I understand the surveyor very fairly says he does not want double notices with the view to double fees, and all the difficulties likely to arise. The suggestion appears to me reasonable, and my clients accede to it.

Mr. Walker asked the magistrate to impose a nominal penalty.

Mr. Poland.—That would involve a decision that Messrs. Dennett are liable to give notice.

Mr. Newton.—I want to avoid all that, if I can. I want to bring you together. I shall adjourn the case for seven days to enable the summons to be withdrawn, on the understanding that Mr. Walker receives a notice from Messrs. Kirk & Randall which shall include the works to which the present summons refers. I hope I shall hear no more about it.

BIRMINGHAM.

THE large space in Ann-street, which was cleared of old houses a few years ago, is now almost entirely covered with new buildings. The latest addition is the Worcester City and County Bank, which will be opened for business next month. The building is designed in the French Renaissance style, by Messrs. Osborne & Reading, of Birmingham. The columns and architraves are of red stone, the body of the work Bath stone, and the sculpture of Portland stone. The upper part of the structure will be used as chambers. The entrances to chambers and bank are placed at the ends, and upon the pediments of these doors sculptured figures, larger than life, are seated. These represent the trade and products of the city and county of Worcester, and, together with the ornamental details, were executed by Mr. John Roddis, of Aston. The bank-room is 65 ft. by 37 ft. Mr. John Garlick has executed the contract, at an estimated cost of 14,000*l.* Messrs. Hart, Peard, & Co. supplied the ornamental metal-work, and Mr. D. Hopkins is clerk of works.

Pneumatic Bells.—We notice that the Patent No. 1,599, dated 1879, for improvements in pneumatic signalling and communicating apparatus, is to be sold at the Auction Mart, London, early in April next, unless previously disposed of by private contract. Mr. C. J. C. Pawley, of Moorgate-street, is the auctioneer.

ARCHITECTURAL COMPETITION IN THE PROVINCES, AND QUANTITIES.

SIR,—The letter of "Architectus," on competition in Liverpool, contained in your last issue, will doubtless have been read with some interest by the profession generally, and the question of whether 2 per cent. without quantities, or 3½ per cent., including quantities, is usual or fair, will probably receive the attention of those of the profession who desire to see a more general uniformity exist in the scale of architects' charges throughout the kingdom, by which is understood the scale sanctioned by the Institute.

But as regards quantities supplied by an architect from his own designs, in any work of importance, and especially when of a public character, a word may be reasonably urged against the practice, if only on the ground that the architect stands in a much more independent position when he does not undertake to provide the quantities; and it should also be more satisfactory at the final settlement of accounts, both to the client and himself.

It is difficult, indeed, for an architect, after the probable cost of the building has been reported to his client, to be other than anxious to keep the actual cost well within the limit of his instructions, and if he should prepare his own quantities, it may unconsciously lead to somewhat understating in the bills of quantities, the character, quality, and possibly the quantity of work to be contracted for, and in the end this has to be made good to the contractor, who, as a matter of course, has noted all omissions, as he has a right to do. The architect is worried about the large claim for extras, and disputes arise which he and the contractor equally dislike; but the outcome is some increased cost to the client, who may think himself injured by the one or the other, and sometimes the end is litigation and arbitration.

Such a position should not be satisfactory to any architect, and in London it is generally avoided, since the preparation of bills of quantities is usually entrusted to qualified surveyors, who are responsible for their accuracy, and who bring to the work a special kind of experience which but few architects, by the nature of their training, could hope to apply for themselves; and those architects who do possess the necessary experience mostly favour the employment of the specialist (or quantity surveyor), as being an equitable course to pursue in the general interests of the work, and not more costly to their clients. N.

PROVINCIAL NEWS.

Bristol.—The new police-courts in Bridewell-street are now (according to the local *Times and Mirror*) practically completed and occupied. The contract with Messrs. Stephens & Bastow was entered into exactly three years ago, but since that time there have been sundry additions made to the original scheme. Now, in addition to the provision for the conduct of the magisterial business, the police force and the city fire brigade have been provided with accommodation that they sadly required. More than ordinary difficulties have been met with in the execution of the work. In the first place, the site was a difficult one to deal with, its form being very irregular. The old gas-examiner's office was removed, and two or three other buildings in Bridewell-street were also taken down. Then eight or nine houses in St. James's-back were demolished, and the site thus obtained enabled the city surveyor, Mr. Josiah Thomas, and the assistant city architect, Mr. W. E. Jones, to provide the required offices. The front of the new buildings is in Bridewell-street, immediately adjoining the Central Station; and, in fact, the buildings are in reality one block. The frontage is 80 ft., and there is a depth of 184 ft. to Silver-street. The exterior has something of the Greek type about it, adapted, of course, to modern requirements. It is of Bath stone, and the ornamentation is but slight. There is a panelled and carved frieze of red Mansfield stone running along the main cornice and other parts of the building. The cost of the various buildings has been, independently of the site, about 17,000*l.*

Guildford.—At a recent meeting of the Corporation it was moved that the site of the old militia barracks be acquired by purchase in order to provide the ground necessary for constructing a new thoroughfare and bridge over the river to the railway station, the total cost of the scheme being put at 15,000*l.* The motion was lost, but a less costly scheme will be considered.

Liverpool.—At a meeting of the Liverpool Health Committee, on the 11th ult., the chairman (Mr. A. B. Forwood) said that a short time previously a letter from the Local Government Board had been read before the committee, in which the question was asked whether it was suggested to erect a class of buildings on the Nash-grove site which would give accommodation for 938 persons, instead of for 1,700,—the number of persons who had been displaced under the Artisans' Dwellings Act. When he (the chairman) was in London, he saw Mr. Sclater-Booth, and expressed his opinion that it would be ridiculous to erect workmen's dwellings on the site. Mr. Sclater-Booth thought that the committee ought to reconsider the subject, and report to the Local Government Board.—A reply addressed by the town-clerk to the Local Government Board, in answer to the communication referred to by the chairman, was read by the deputy town-clerk. The Town-clerk in his letter pointed out that if the Health Committee were to provide accommodation for 1,700 persons, it would be necessary to build the houses on the terrace system, which was very unpopular with the working-classes. The Health Committee, for this reason and others, desired a modification of the scheme, in order that the houses might be built under the ordinary building by-laws, by which 938 persons could be accommodated. The Town-clerk then referred to the objectionable physical character of the ground for workmen's dwellings, to the long period during which the Corporation had been unsuccessfully endeavouring to sell the land, and to the fact that there had been provided by private enterprise, since the Medical Officer of Health had made his official representation, 9,900 dwellings suitable to the working-classes in more healthy parts of Liverpool. The letter went on to suggest that all restrictions should be withdrawn from the Corporation in disposing of the property, so as to relieve the ratepayers of a portion of the loss they had sustained by reason of the purchase; and concluded by suggesting that an arrangement similar to that in London should be effected, whereby, if the Corporation provided an equal quantity of available land elsewhere, all restrictions in the disposal of the cleared site should be withdrawn. The Chairman said he would see Mr. Cross on the subject, and that the interests of the ratepayers would be fully considered in anything that was done.

Epsom.—A joint-stock company has been registered, for the purpose of erecting a public hall, and is about to complete the purchase of the land.

CHURCH-BUILDING NEWS.

Stockbridge.—The parish church, built some years ago from the designs of Mr. John Colson, architect, Winchester, consists on plan of a nave, aisles, transepts, and chancel, and is cruciform. Its style of architecture is Decorated Gothic; the stone used for the dressings is Bath, and the roofs are of steep pitch. It was originally intended to include a south-western spire in the grouping of the building, but funds falling short the spire was left until some future time. The design also embraced a good deal of carved work, but this also it was thought well to leave for the time, large blocks of stone being left in the rough, uncarved. Sufficient funds have been collected to complete the internal decoration of the church, and the chancel roof has been painted and decorated, and the purlins and ribs picked out with gold. The pulpit, which is of stone, has been restored. The whole of the large capitals in the arcades have been carved with bold foliage of a naturalesque type; and the various corbels and other minor capitals partake of the same character. The corbels carrying the chancel roof are sculptured heads. The carved work has been carried out by Mr. Harry Hems, of Exeter.

Plymouth.—The tower of St. Andrew's Church has just received an addition. Mr. Alfred Hingston, who has been long connected with the parish as churchwarden, has provided a statue for the niche over the north doorway, which has probably been empty for at least three centuries. Some months ago he commissioned Mr. Trevenen, sculptor, Plymouth, to execute in Portland stone a figure of St. Andrew, about 7 ft. in height.

DISSENTING CHURCH-BUILDING NEWS.

Whitmore.—The Primitive Methodist Chapel in the village of Whitmore, near Newcastle-under-Lyme, has been re-opened, after alterations and enlargement. By the erection of new galleries, something like forty or fifty more sittings have been obtained. The plans for the alterations and additions were prepared by Mr. Elijah Jones, architect, Hanley, under whose superintendence the whole of the works have been carried out. The builder is Mr. J. Bennett, of Newcastle.

York.—A new Primitive Methodist Chapel has been opened at Bishophill, York. The architect of the building is Mr. W. Peachey, of York. The style adopted is the Renaissance, carried out entirely with red and white pressed bricks, with a little terra-cotta. The windows on the ground-floor are semi circular-headed, and those to the galleries are segments of circles,—both having moulded arches in white brick, and moulded mullioned and transomed windows, the arched portion being a fan-light, filled with painted glass. The ground floor is in the amphitheatre form, the seats being curved. There is a four-sided gallery, the front of which and the rostrum are of pitch-pine and mahogany, and the seats are of red deal with mahogany capping and pitch-pine ends. One side of the gallery is used by the choir, and contains space for an organ. The building is well lighted, and is warmed by a hot-water apparatus fixed by Mr. Truswell, of Sheffield. The chapel will seat about 900 persons. The contracts amount to about 2,700*l.*, and were let to the following local tradesmen:—Excavator, bricklayer, mason, slater, plasterer, and carpenter's and joiner's work, Mr. Barry; plumber, gasfitter, and glazier, Mr. Shouksmith; smith and ironfounder, Mr. M. Bousfield; painter, Mr. G. E. Boynton.

STAINED GLASS.

Folkestone.—A five-light painted window has just been placed in the north transept of the parish church of Folkestone. The figures of our Lord and the Evangelists are represented in the upper part of the window, and below the figures are subjects taken from the life of St. Matthew. The tracery is filled with angels with musical instruments. The inscription at the base is as follows:—"To the glory of God, and in grateful recognition of spiritual benefits received through the ministrations in the parish church of SS. Mary and Eanserythe, Folkestone, some visitors have placed this window." The window was designed and executed by Messrs. Heaton, Butler, & Bayne, of London.

Charlton.—A stained-glass window has recently been placed in St. Paul's Church, Charlton, in memory of the late Rev. H. J. Balchin. The subject is that of the Good Samaritan. The window was designed and executed by Messrs. Heaton, Butler, & Bayne.

Denbigh.—A new memorial window in St. Mary's Church, Denbigh, has been unveiled. It has been erected by the parishioners to perpetuate the memory of the former rector, the Rev. Lewis Lewis, M.A. The subjects in the window are representative of the objects, life, and character of the Christian pastor,—the proclamation and gradual spread of the Gospel. The window is the work of Messrs. J. V. Rowlands & Co.

VARIORUM.

OF the "Farming for Pleasure and Profit" series (Chapman & Hall) two fresh volumes have been published, "The Drainage of Land, Irrigation, and Manures," and "Root-growing and the Cultivation of Hops," both by Arthur Roland, edited by W. H. Ablett. They seem well-adapted for the purpose they have in view, and convey much information in a plain and simple style.——"Our Actors and Actresses," edited by Chas. E. Pascoe (published by David Bogue), is the second edition of a "Dramatic List," recording the performances of living actors and actresses on the British stage. It is, in fact, the germ of a biographical dictionary of members of the dramatic profession. It appears to be executed with impartiality and judgment, and may be recommended to all who are interested in the stage.——"Dramatic Notes, an Illustrated Handbook of the London Theatres, 1879," also edited by Mr. C. E. Pascoe, contains a considerable number of illustrative sketches. ——The last-published number of the reissue of

"Old and New London" speaks thus of Cheapside:—"What a wealth and dignity there is about Cheapside; what restless life and energy; with what vigorous pulsation life beats to and fro in that great commercial artery! How pleasantly on a summer morning that last of the Mohicans, the green plane-tree, now deserted by the rooks, at the corner of Wood-street, flutters its leaves! How fast the crowded omnibuses dash past with their loads of young Greshams and future rulers of Lombard-street! How grandly Bow steeple bears itself, rising proudly in the sunshine! How the great webs of gold chains sparkle in the jewellers' windows! How modern everything looks! And yet only a short time since some workmen at a foundation in Cheapside, 25 ft. below the surface, came upon traces of primeval inhabitants in the shape of a deer's skull, with antlers, and the skull of a wolf, struck down, perhaps, more than 1,000 years ago, by the bronze axe of some British savage. So the world rolls on: the times change, and we change with them." And again:—"In 1273 the candle-makers seem to have taken a fancy to Cheapside, where the horrible fumes of that necessary but most offensive trade soon excited the ire of the rich citizens, who at last expelled seventeen of the craft from their sheds in Chepe. In the third year of Edward II. it was ordered and commanded on the king's behalf that "no man or woman should be so bold as henceforth to hold common market for merchandise in Chepe, or any other highway within the City, except Cornhill, after the hour of nones" (probably about three p.m.); and the same year it was forbidden, under pain of imprisonment, to scour pots in the roadway of Chepe, to the hindrance of folks who were passing; so that we may conclude that in the London of Edward II. there was a good deal of that out-door work which the traveller still sees in the back streets of Continental towns."——"The Boy's Own Paper," and "The Girl's Own Paper," both published at the "Leisure Hour" office, are well suited to their object. They include numerous illustrations, and are very cheap.——The fourth volume of *Social Notes*, just now received, contains a considerable amount of useful, and, at the same time, agreeable, reading. The principal feature is an illustrated series of papers under the general heading, "Benefactors: 'Not for an Age, but for all Time.'"——"London in 1880," by Herbert Fry (David Bogue), is illustrated with bird's-eye views of the principal streets, which enable a stranger readily to find the position of any public building he is seeking. Small as the volume is, it contains an immense amount of carefully-condensed information, and we desire to recommend it.——"Bevis's Builders' Price Book and Guide for Estimates" is growing in size and value. The issue for 1880 includes many improvements.

Timber Measurements.

THE conversion of the various sizes of sawn wood into their equivalents in St. Petersburg standard hundreds appears to be a standard bother in the trade. Messrs. Eede Butt & Sons, of Brighton, have just now issued a table and scale which, when mastered by a little close study, will be found to save much time.

Miscellanea.

Sewage Utilisation at Salisbury.—An official inquiry was held on the 16th ult. by Captain Hildyard, Local Government Inspector, as to the expediency of permitting the Town Council compulsorily to acquire land for the formation of a sewage farm, the owner of property adjoining the present drainage outfall having taken steps to prevent the flow of sewage into the river under the Rivers Pollution Act. It was stated that the total cost of purchase and the erection of the necessary works would be something like 80,000*l*.

Japanese Marble.—Signor Gagliardi, an Italian Professor at the Polytechnic Institute in Tokio, who was lately commissioned by the Japanese Government to explore the Ibaraki mountain range, reports that he has found several veins of marble of different colours. One mountain, Suvoyama, seemed to him to be a mass of white statuary marble; and he also declares that he came upon some black marble equal to the finest in Europe. He anticipates that if care be taken in quarrying, and facilities of transport be provided, Japan will become the great marble market for the world.

Steam Boiler Explosions.—At the annual meeting of the Manchester Steam Users' Association, Mr. Hugh Mason, the president, moved the adoption of the report, which was seconded by Mr. Samuel Rigby, Warrington. In it attention was called to the fact that the association was not established for profit; that it had no shareholders, and paid no dividends; but that it was carried on for the public good, to prevent the sacrifice of human life from steam-boiler explosions; and that, through faithful periodical inspection, its members enjoyed practical immunity from explosions. It was stated that the association had more boilers and more engines under inspection than at any previous time. During the year 1879 there had occurred throughout the country twenty-five explosions from steam boilers, killing forty persons and injuring fifty-two others; added to which there had been twenty-two miscellaneous explosions from the bursting of kiers, kitchen boilers, &c., killing fifteen persons and injuring thirty-six others. Mr. John D. Hutchinson, M.P. for Halifax, moved, and Mr. John Ramsbottom, C.E., late locomotive superintendent, London and North-Western Railway, seconded a resolution, stating that the association considered it imperative that the Government should interfere and enforce the general adoption of competent inspection by local boards formed by steam users themselves, or by private voluntary inspecting agencies duly authorised and registered, and that there ought to be an inquiry in the case of every explosion. This resolution was carried unanimously.

The Site of Horsemonger-lane Gaol.—The magistrates of Surrey continue to receive memorials, from public bodies as well as from private individuals, asking them to dedicate the space made vacant by the removal of the old county prison to the public use as a recreation ground. It is stated that the entire area left vacant is 2a. 2r. 32p. and a few yards, or, in other words, barely 2¼ acres. The magistrates consider that it is absolutely indispensable that a portion of the site should be reserved to meet the requirements of the county, for it must be borne in mind that the courts, Clerk of the Peace's office, &c., abut on and form one side of the vacant space. The old gaol and its site were handed over to the magistrates in lieu of a money payment for the extra cell accommodation and surplus land at Wandsworth House of Correction, when the prisons passed into the hands of the Government, and they represent a sum of 38,880*l*., the amount at which the value of the extra cells and land was assessed. After retaining a portion for county requirements, it is probable that about an acre and a half will be offered for sale in such a way as to realise the best price obtainable. The money would be devoted to the reduction of county loans, some of which on the House of Correction are still in process of being paid by annual instalments.

The Widnes Carpenters and Joiners.—A large aggregate meeting of the members of the Widnes branch of the Amalgamated Society of Carpenters and Joiners was held on Tuesday last. During the proceedings it was stated that in 1879 the men consented to a reduction of a halfpenny per hour and an extension of an hour in the working-hours. The employers had now given notice that on and after the 1st of May there would be a reduction of one penny per hour, which, if carried out, would cause the men to lose all that had been gained during the last eight years. It was unanimously resolved to resist, by all legitimate means, any further reduction of wages, and that a levy of 3s. per man should be put upon each man employed at the present rate of wages.

The Foundation of our Chronology.—Is there nothing stable, nothing correct? What is to be depended on? In No. I. of the "New Testament Commentary," edited by Bishop Ellicott, we find the following information:—"The death of Herod took place in the year of Rome A.U.C. 750, just before the Passover. This year coincided with what in our common chronology would be B.C. 4; so that we have to recognise the fact that our common reckoning is erroneous, and to fix B.C. 5 or 4 as the date of the Nativity."

Northampton Town-hall.—A fire occurred on Monday last in the Northampton Town-hall in consequence of the foul condition of the flue in the clock tower. The roof was destroyed, but the fire brigade saved a considerable portion of the building.

The Liverpool Building Trade.—At a general meeting of operative stonemasons, held on Tuesday last in Queen Anne Hall, the following resolution was unanimously adopted:—"Resolved, that we resist any reduction in our present rate of wages, but are willing to submit the whole question to arbitration. We having submitted to a reduction so recently, think the present demand unjust and uncalled for." At a special general meeting of the operative plasterers, held at the Concert-hall the same evening, the following resolution was unanimously adopted:—"Seeing that the last reduction of wages and increase of hours of work have not benefited us or the trade at large, we think that it would be better to remain at the present rate of wages and hours until trade revives." It was further resolved that all men working should have a levy made upon them of 6d. per day.

Baths and Wash-houses for Greenock.—Some time ago a company was formed in Greenock for the purpose of erecting baths after the model of the Arlington Baths, Glasgow, and plans for the building have just been passed by the Dean of Guild Court. These plans show a large swimming-pond, surrounded by a gallery and Turkish Baths, with all conveniences. On the upper flat of the building, which is to be erected in Brougham-street, there will also be a reading-hall, with smoke and recreation rooms.

Antiquities: Brunswick.—A Swiss paper mentions that in pulling down the old town barracks at Brunswick a few days ago, a part of the original façade of Henry the Lion's Palace was found built in one of the walls. A window, divided into three parts by two exquisitely-executed and well-preserved pillars, with Roman capitals, has already been laid bare, and little doubt is entertained that the entire eastern façade of the historic building will be susceptible of restoration.

Metropolitan Board of Works.—At a meeting of the Board, held on Wednesday, the 24th ult., leave of absence for one month was granted to Mr. George Vulliamy, on account of ill-health, and Mr. John Hebb, assistant architect, was appointed Deputy Superintending Architect, to perform the duties imposed by the Metropolitan Building Act during Mr. Vulliamy's absence.

Professor Curtius, accompanied by a German Government land surveyor, has left Berlin for Greece to complete the archæological exploration of Olympia.

TENDERS

For school for 150 boys, and teacher's residence, &c., for the Hollington School Board, at Hollington Corner, Hastings. Messrs. S. & A. Smith, architects. Quantities supplied:—

	School and Residence.	Fittings.
Avis & Co.	£1,728 10 0	£94 10 0
Bridgeland	1,729 0 0	81 0 0
Roddee	1,687 0 0	77 9 0
Coussens	1,620 0 0	67 0 0
Jones & Co.	1,500 0 0	85 0 0
Stubberfield	1,454 10 0	67 14 0
Elliott	1,336 18 6	58 7 9
Bourne	1,329 0 0	38 0 0
Ashdown*	1,219 10 0	45 10 0

* Accepted, subject to the approval of the Committee of Council on Education.

For warehouses in Castle-street, Finsbury, for Sir Sydney H. Waterlow, bart. Mr. Edwin T. Hall, architect:—

	If in Stocks.	If in Gaults.
Clarke & Bracey	£8,071	£8,431
Allen	7,980	8,280
Adamson & Son	8,016	8,196
Toms	7,783	8,042
Patrick & Son	7,588	7,828
Longmere	7,756	7,791
Nightingale	7,453	7,753
Bangs & Co.	7,454	7,577
Colls & Sons	7,418	7,513
Brass	7,191	7,266
Braid & Co.	7,007	7,207

For new schools and schoolmaster's house, at Eastling, Kent, for the Eastling School Board. Mr. Benjamin Adkins, architect:—

Dawson, jun.	£1,542 0 0
Johnson	1,343 0 0
Shilling	1,334 3 0
Whiting Bros.	1,236 0 0
Cornelius	1,209 0 0
Judges	1,184 0 0
Payne	1,125 0 0
Seager (accepted)	1,076 0 0

For addition to the Grange, Chislehurst, Kent, for Mr. E. B. Ricketts. Mr. G. Somers Clarke, architect. Quantities by Mr. C. G. Maylard:—

Grover	£2,226 0 0
Crossley	2,110 0 0
Ansell (accepted)	1,970 0 0
Cox	1,909 0 0

For alterations at Nos. 130 and 132, Hoxton-street, Hoxton, for the London and Provincial Coffee Palace Company, Limited:—

Ellis & Edmondstone	£1,050 0 0
Ashwell & Stevenson	1,031 0 0
Thomas & Butland	967 0 0
Sawyer	966 0 0
Devereux & Son	929 0 0
Bidgood (accepted)	925 0 0

For three houses at Camberwell, for Mr. Welsh. Mr. Edgar Aldous, architect. Quantities supplied by Mr. Barnard:—

Eldridge & Geo.	£2,810 0 0
Kirk	1,677 0 0
West & Perkins	1,675 0 0
Crosker	1,530 0 0

For the erection of a villa residence, Sydenham, for Mr. H. S. Jula. Mr. Joseph S. Moye, architect:—

Grover	1,686 0 0
Roberts	1,670 18 0
J. & C. Bowyer	1,670 0 0
Seals (accepted)	1,632 0 0

For alterations and additions to Nos. 1, 2, and 3, Bromley-buildings, Huggins-lane, for Mr. G. O. M. Hawen. Mr. Joseph S. Moye, architect:—

Hardy	£40 0 0

For alterations and additions to Kirby's Farm, Kirby, for Squire Blenshard. Mr. Joseph S. Moye, architect:—

Saunders & Sons	£435 0 0

For the erection of a farm-house, Walton-on-the-Naze, Essex, for Squire Blenshard. Mr. Joseph S. Moye, architect:—

Saunders & Sons	£280 0 0

For new warehouse, Juniper-street, Shadwell, for Messrs. Norris & Co. Mr. Charles Dunch, architect. Quantities supplied:—

Colls & Sons	£3,627 0 0
Brass	3,479 0 0
Morter	3,453 0 0
Earl & Son	3,352 0 0
Macey	3,316 0 0
Taylor & Parfitt	3,245 0 0
Ashby & Horner	3,140 0 0
McLachlan & Sons	3,137 0 0
Sheffield & Prebble	2,937 0 0

For rebuilding the "Old Spotted Dog" Tavern, at Neasden, near Willesden, for Mr. George Twyford. Mr. Robert J. Worley, architect. Quantities by Mr. R. C. Glead:—

Hyde	£2,850 0 0
Veare & Co.	2,754 0 0
Downs & Co.	2,694 0 0
Smith	2,594 0 0
Lawrance	2,409 0 0

For alterations to 46, Great Marlborough-street, for Mr. Robert Reid. Mr. William Wimble, architect:—

Bywater	£3,297 0 0
Ashby & Horner	3,267 0 0
Brass	3,123 0 0
Colls & Sons	2,840 9 0
Morter	2,768 0 0

For the erection of a Baptist Chapel, Llangennech. Mr. T. Thomas, architect. Quantities by Mr. S. J. Rooney:—

Edwards (accepted)	£2,800 0 0

For premises at Queen's-road, Hastings, for the Hastings and St. Leonard's Coffee Palace and Hotal Company, Limited. Messrs. Cross & Wells, architects:—

Womersley (accepted)	£5,300 0 0

For building new church at Penrhyncock, Cardiganshire. Mr. Withers, architect:—

Williams & Son (accepted)	£940 0 0

For completion of restoration of first four bays of nave and aisles, Parish Church, Bodmin, Cornwall. Mr. Withers, architect:—

Flooring.

Nicholls (accepted)	£228 10 0

Oak Doors.

Shelly	£139 17 3
Gray	130 0 0
Gill	111 4 0
Wall (accepted)	95 16 0

For rebuilding No. 18, Kensington-gardens, Brighton. Mr. Arthur Loader, architect:—

King	£912 10 0
Hackman	898 0 0

For National Schools, Portslade-by-Sea, near Brighton. Mr. Arthur Loader, architect. Quantities supplied:—

Ide	£2,412 13 0
Patching & Son	2,357 0 0
Snewin	2,275 0 0
Parsons	2,233 10 0
Bruton	2,125 0 0
Nurcomb	2,093 0 0
Blaker	2,076 0 0
Lockyer	2,068 0 0
Buckler	2,046 9 0
King	1,923 1 0
Redford	1,797 10 0
Miles	1,760 0 0
Hooker	1,730 0 0

For alterations and additions to the Parish Church of St. Thomas, Haverfordwest. Mr. E. H. Lingen-Barker, architect:—

Reynolds (accepted)	£380 0 0

For building two houses and shops, and alterations to the "Royal Hotel," Mile-end-road, for Mr. A. Yates. Mr. S. W. Irons, architect:—

Beale	£4,450 0 0
F. & F. J. Wood	4,398 0 0
Marr	4,310 0 0
Cooks	4,189 0 0
Hunt	3,991 0 0
Ashby & Horner	3,980 0 0
Sheffield & Prebbin	3,773 0 0
Lusk	3,711 0 0
Judd	3,699 0 0
Crisp & Tomlin	3,643 0 0

For the erection of Boys' School and two class-rooms, &c. in addition to the present public school, at Teddington, Middlesex. Mr. Thomas Goodchild, architect. Quantities supplied by Mr. H. P. Foster:—

Bushell	£1,353 0 0
Piller	1,196 0 0
Hiskenbotham	1,190 0 0
Messum	1,147 0 0
Hurst	1,127 0 0
White	1,083 0 0
Collinson	1,020 0 0
Benell (accepted)	998 16 0

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